# AGENDA

## Nevada Site Specific Advisory Board
## Member Orientation (Virtual)
## Tuesday, October 27, 2020

# Environmental Management Site-Specific Advisory Board (EM SSAB) Overview

**Barbara Ulmer**
NSSAB Administrator
Navarro
October 27, 2020

# EM SSAB Background

- Group of volunteers convened by the U.S. Department of Energy's (DOE's) EM Program to provide citizen review and feedback to DOE on EM activities throughout the country
- Largest federally chartered advisory board in the country
- Made up of eight local advisory boards - including the Nevada Site Specific Advisory Board (NSSAB)
- 1994 – EM SSAB Charter approved
  - Requires renewal every two years

# Oversight vs. Advisory

- Oversight – monitor progress toward completion according to specified milestones that are often reflected in law and/or agreements
- Advisory – independently create recommendations that address work within the EM purview of concern and interest to the board and the public

The NSSAB is an ***advisory*** board

# Scope of the NSSAB

- Groundwater characterization
- Surface soil contamination/remediation
- Facility contamination/remediation
- Low-level waste disposal and transportation
- EM budget prioritization
- Post-closure monitoring of EM sites
- Stakeholder outreach

# SSAB Operating Requirements

- Federal Advisory Committee Act
- EM SSAB National Charter
- DOE Guidance
- NSSAB Standard Operating Procedures (by-laws)
- EM SSAB Code of Conduct

Documents available on the NSSAB website at **www.nnss.gov/NSSAB** under *References*

# Nevada Site Specific Advisory Board (NSSAB) Overview

**Barbara Ulmer**
NSSAB Administrator
Navarro
October 27, 2020

# Make Up of the NSSAB

- Members – represent their community
- Liaisons – represent organizations
- Staff

*Did you know the NSSAB used to be known as the Community Advisory Board for Nevada Test Site Programs?*

# Board Members

- Represent their community
- Appointed by Department of Energy's (DOE) Assistant Secretary for Environmental Management (EM)
- Serve two-year term that can be renewed by DOE two times (six year limit)
- Strive for 15-20 members with appointments staggered so at least one-third of Board retained for continuity
- Include a diversity of viewpoints from citizens whose communities are near DOE site clean-up activities

# Board Members
(continued)

- Responsibilities
  - Attend and participate in regular Full Board meetings and training
  - Review EM work plan items within NSSAB's purview
  - Submit timely recommendations to DOE
  - Respond to NSSAB office communication in a timely manner

# Chair and Vice Chair

- Chair and Vice Chair
  - Elected for one-year terms beginning October 1
  - Support Board in balanced and unbiased manner
  - Ensure all viewpoints are considered in Board discussions
  - Participate in EM SSAB biannual meetings*

*The last virtual EM SSAB biannual meeting can be viewed at:
Day 1: https://youtu.be/gxF72g9YMHQ
Day 2: https://youtu.be/PtdF69V10Co

# Chair and Vice Chair
(continued)

- Chair Responsibilities
  - Preside over Full Board meetings
  - Certify Full Board minutes within 45 days
  - Represent the NSSAB during media opportunities*

- Vice Chair Responsibilities
  - Serve as Chair in his/her absence
  - Represent the NSSAB during media opportunities*

* Only the Chair, Vice Chair, or Chair appointee may represent the Board with the press/media

# Liaisons

- Represent their parent organization
- Non-voting positions
  - Organizations are appointed by the DOE
  - Organizations are responsible for determining who will represent them on the Board

# Liaisons
(continued)

- Responsibilities
  - Provide timely access to information pertinent to EM and associated environmental issues and related decision-making
  - Inform the NSSAB in a timely and proactive manner of entity processes, programs, projects, and activities pertinent to the Board's mission and purpose
  - Provide a short, verbal report on parent organizations involvement in EM activities at each Full Board meeting
    - If liaison is unable to attend, a written report will be submitted to the NSSAB Office via email two days prior to the Full Board meeting

# Liaisons
(continued)

- Two ways for organizations to stay apprised of NSSAB activities
  - Full Liaison – allows for liaison organizations to have a voice in Board discussions and input into recommendations; heavily relies on liaisons attending NSSAB meetings
  - Limited Liaison – allows for liaison organizations to observe NSSAB activities by receiving meeting minutes, monthly reports, NSSAB recommendations, and DOE responses; does not allow for a formal seat on the Board

# Liaisons
(continued)

- Current representation:
  - Clark County (Phil Klevorick)
  - Consolidated Group of Tribes and Organizations (Richard Arnold)
  - Elko County Commission (Jon Karr)
  - Esmeralda County Commission (Delon Winsor)
  - Lincoln County Commission (Jared Brackenbury)
  - Nye County Commission (Leo Blundo)
  - Nye County Emergency Management (Scott Lewis)
  - Nye County Nuclear Waste Repository Project Office (John Klenke)
  - State of Nevada Division of Environmental Protection (Chris Andres)
  - U.S. National Park Service (Richard Friese)
  - White Pine County Commission (Ian Bullis)

# Deputy Designated Federal Officer (DDFO)*

## *Rob Boehlecke*

- Ensures the Board has opportunities for providing input to DOE
- Provides timely information to the Board relative to DOE and EM initiatives, decisions, and processes
- Provides suggestions to the Board regarding EM activities on which its input would be useful

*Bill Wilborn is alternate DDFO

# DDFO
(continued)

- Reviews Board input and ensures timely response
- Ensures that community and Board concerns related to EM are addressed
- Attends all NSSAB meetings
- Approves meeting agenda and minutes
- Can adjourn meetings if it is in the public interest

# Administrator

## *Barbara Ulmer*

- Arranges/facilitates meetings; prepares written minutes
- Provides day-to-day communications
- Coordinates travel activities
- Maintains complete files of NSSAB activities
- Works with NSSAB to finalize/format written recommendations

# Member Attendance

- May not miss two consecutive Full Board meetings without an excused absence
- Attendance is required at a minimum of 50% of regular meetings in any one-year period
- To be considered “present,” must attend two-thirds of a meeting

# Conflict of Interest

- Board members are prohibited from participating as an NSSAB member in any matter in which they have financial interest
- If aware of a conflict, Board members must refrain from discussions and recommendations
- Members must report actual/potential Conflict of Interest to the NSSAB Office in a timely manner
- Members must report any changes in employment

# Recommendations

- Meetings are held to discuss information and perspectives and develop draft recommendations
- Draft recommendation must be thoroughly reviewed and approved by majority vote of the Full Board
  - Minority Report can be included if majority of Board agrees it should be contained in the recommendation
- Approved recommendation signed by the Chair and submitted to DOE within 15 days

# Gifts, Gratuities, Loans, or Favors

- May not knowingly receive gifts, gratuities, loans, or favors from persons having business with DOE EM, except if
  - Less than $20 ($50 total per year)
  - Motivated by personal friendship
  - Result of outside activities and not enhanced by Board membership

# NSSAB Meetings

- The Board will meet as needed with length of meeting determined by agenda
- The DDFO, or appointed DOE representative, must be present at all NSSAB meetings
- Meetings follow agenda and conducted by the Chair with facilitation by the Administrator
- Voting is conducted according to Robert's Rules of Order
- Meeting requires a quorum (at least 51% of voting members) for decision making

# NSSAB Meetings
(continued)

- Time and Location
  - Full Board typically meets the third Wednesday of selected months at 4 p.m. for three to four hours
  - Time and location must be accessible to the general public
  - While typically held in the Las Vegas area, in-person meetings are also held in other communities near the Nevada National Security Site (NNSS)

# NSSAB Meetings
(continued)

- Notices
  - 72-Hour Congressional and Federal Register Notices are required for all meetings where a quorum will potentially be present
  - Members and liaisons are sent notice of meeting with request for attendance response and draft agenda approximately a week prior to meeting
  - Newspaper advertising – Las Vegas Review Journal, Pahrump Valley Times, and Tonopah Times
  - News release (distributed to ~30 media outlets)
  - EM Update (distributed to over 30,300 subscribers)
  - Social media (i.e., Facebook, Twitter, etc.)
  - Bulletin board flyers for members to post in their community

# NSSAB Meetings
(continued)

- Agendas
  - Prepared by Chair, Vice Chair, DDFO, and Administrator
  - Provided to members the week prior to the meeting
  - Posted to the website
  - If available, work plan briefings and items for vote are sent to the Board for review prior to the meeting

# NSSAB Meetings
(continued)

- Minutes
  - Prepared by Administrator
  - Provided to members, liaisons, and DDFO for review
  - Full Board minutes certified by Chair and DDFO within 45 days
  - Posted to the NSSAB website

# NSSAB Meetings
(continued)

- Public Participation
  - Meetings are open to the public
  - A section of the meeting space is available for public seating (in-person)
  - Public comment is included in the agenda
  - Written comments are always accepted
  - NSSAB/DOE does not respond to public comments (may choose to address comments during applicable agenda item)
- Refreshments (in-person meetings)
  - Any refreshments are self-funded by members/liaisons

# Work Plan

- Work Plan developed at September Full Board meeting
- Outlines all activities the Board will participate in during the fiscal year
- Ensures Board members and DOE understand each others' expectations
- Items suggested by DOE and NSSAB members in accordance with guidance from EM Assistant Secretary
- NSSAB selects work plan items and requests approval from DOE prior to October 1
- Modifications may be requested during the fiscal year with DOE approval

# Committees

- Membership is only standing committee
- Ad hoc committees are formed as needed in accordance with Work Plan requirements
- Committee chairs for the fiscal year are elected by the committee members
- Discussions held during committee meetings that result in a draft recommendation must be discussed during a Full Board meeting to ensure all members have had the opportunity to fully understand all aspects of the recommendation

# Administrative

- NSSAB office hours are Monday through Thursday,
  7:30 a.m. to 4:30 p.m.
- Majority of NSSAB communication conducted via
  e-mail NSSAB@emcbc.doe.gov or
  phone 702-523-0894
- Report changes regarding contact information and work status to the NSSAB office

# Travel Overview

- Authorized Travel
  - NSSAB meeting notices sent via e-mail
  - NSSAB members *must* send a **"reply e-mail"** which will serve as your "Travel Request"
  - Members cannot receive reimbursement unless a Travel Request is submitted and DOE approval is given in advance of travel
- Reimbursement is paid through direct deposit
- No checks are generated or mailed
- Emergency contact information is required

# Travel Overview
(continued)

- NSSAB members must follow Federal Travel Guidelines
- NSSAB members responsible for payment of travel expenses with DOE reimbursement after travel completion
- Lodging and per diem reimbursement are dependent upon location and time of meeting

# Travel Overview

(continued)

- Travel reimbursement is based on approved federal per diem rates for hotel and meals and incidental expenses (M&IE)
  - Rates vary from city to city
  - Per diem is daily allowance for food and incidentals
  - Rates generally change each fiscal year

| Las Vegas | Hotel | Full-Day M&IE | Partial-Day M&IE |
|---|---|---|---|
| Oct 1, 2020 – Sep 30, 2021 | $120 | $ 61 | $ 45.75 |

U.S. General Services Administration (GSA) Per Diem Rates:
https://www.gsa.gov/travel/plan-book/per-diem-rates

# Travel Overview
(continued)

- Mileage
  - Roundtrip mileage is always calculated from your *residence* to the *meeting location* and *back*
  - Mileage reimbursement is offered if meeting location is more than 30 miles one-way from residence
  - Reimbursed at $0.575 per mile (*current rate set by IRS*)

# Travel Overview
(continued)

- Receipts
  - E-mail or fax (702-724-0981) all receipts to the NSSAB office
  - Do not submit receipts for food (this is covered by your per diem (M&IE), if applicable)
  - Vouchers cannot be processed without receipts and traveler's approval
- Payment
  - Made via direct deposit
  - Usually within one week of voucher submittal

# Travel Overview
(continued)

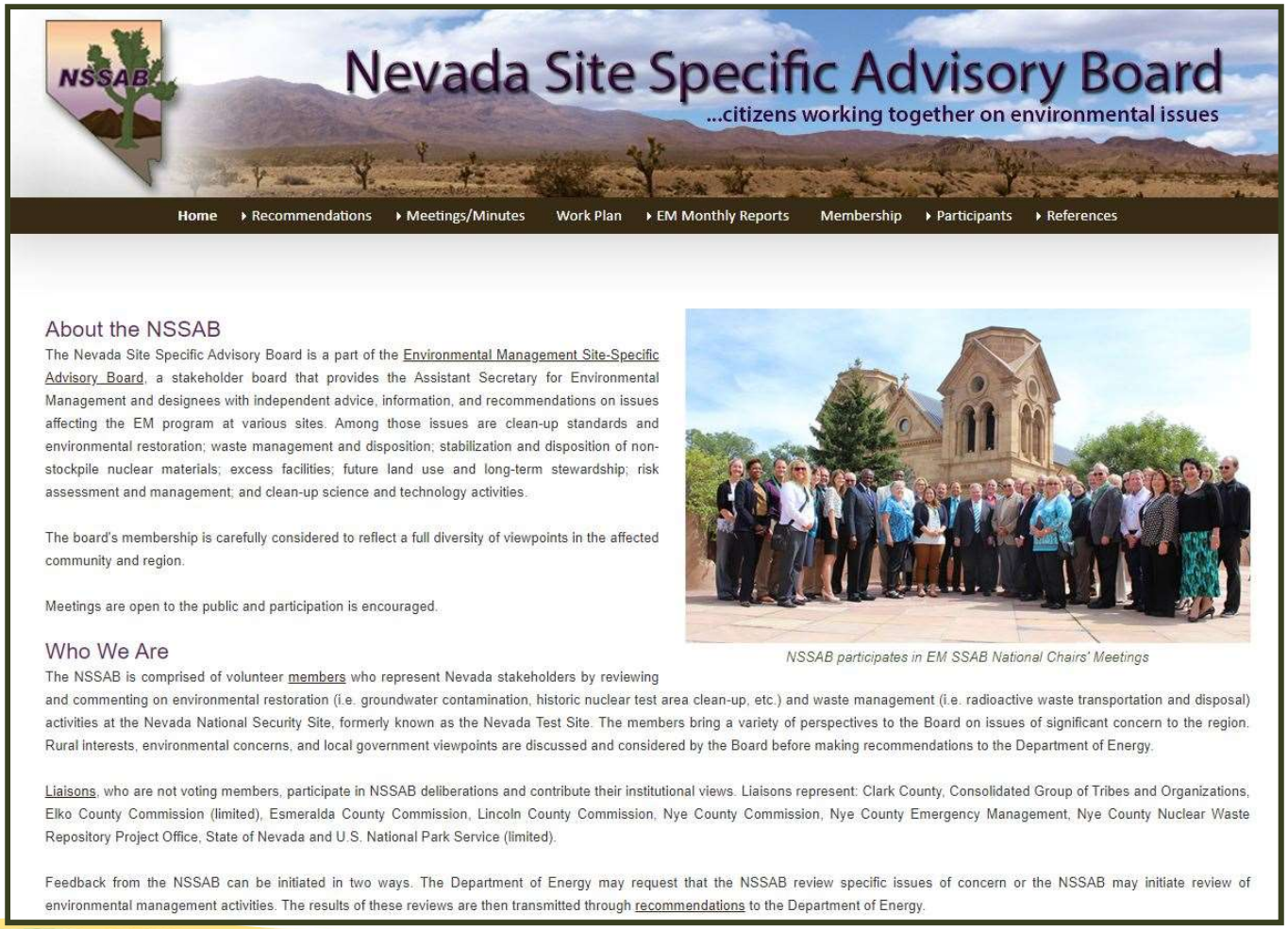
- Nevada Travel
  - NSSAB members are responsible for own hotel reservations
  - Government room rate must be requested (per guidelines)

# Travel Overview
(continued)

- Out-of-State Travel
  - All arrangements (air, hotel, transportation) for out-of-state NSSAB meetings are made by the NSSAB Office
  - Most cities have a government contracted airline and NSSAB members must travel via these carriers

# NSSAB Website

www.nnss.gov/NSSAB



# NSSAB Procedures/References

- NSSAB By-laws: https://www.nnss.gov/nssab/docs/References/Nevada_Bylaws_11-10-15_FINAL.pdf
- Federal Advisory Committee Act: https://www.gsa.gov/policy-regulations/policy/federal-advisory-committee-management/legislation-and-regulations/the-federal-advisory-committee-act
- EM SSAB National Charter: http://www.nnss.gov/nssab/docs/References/EM-SSAB-Charter-2020-Renewal-signed.pdf
- EM SSAB Code of Conduct: http://www.nnss.gov/nssab/docs/References/EM%20SSAB%20Code%20of%20Conduct.pdf
- NSSAB Work Plan: http://www.nnss.gov/nssab/pages/WorkPlan.htm

# NSSAB Procedures/References (continued)

- NSSAB Liaison Eligibility and Responsibilities Regarding DOE Travel Reimbursement: http://www.nnss.gov/nssab/docs/References/NSSAB%20Liaison%20Eligibility%20&%20Responsibilities%20Regarding%20U.S.%20DOE%20Travel%20Reimbursement.pdf
- NNSS Acronyms: http://www.nnss.gov/pages/resources/Acronyms.html
- NNSS Fact Sheets: http://www.nnss.gov/pages/resources/library/FactSheets.html
- What is Radiation? (fact sheet) https://www.nnss.gov/docs/fact_sheets/DOENV_1043.pdf
- Fundamental Principles of Radiation (50 minute video) https://www.youtube.com/watch?v=-7LKehxcPFE
- NNSS Environmental Report: https://www.nnss.gov/pages/resources/library/NNSSER.html

# EM Nevada Program Fact Sheets

- Environmental Management:
  https://www.nnss.gov/docs/fact_sheets/DOENV_1058.pdf
- Environmental Remediation Work at Tonopah Test Range:
  https://www.nnss.gov/docs/fact_sheets/DOENV_1574.pdf
- NNSS Groundwater Program:
  https://www.nnss.gov/docs/fact_sheets/DOENV_915.pdf
- Groundwater Questions and Answers:
  https://www.nnss.gov/docs/fact_sheets/DOENV_618.pdf
- Federal Facility Agreement and Consent Order (FFACO)
  https://www.nnss.gov/docs/fact_sheets/DOENV_964.pdf
- Nevada Site Specific Advisory Board:
  https://www.nnss.gov/docs/fact_sheets/DOENV_1245.pdf

# EM Nevada Program Fact Sheets
(continued)

- Environmental Management Stakeholder Involvement:
  https://www.nnss.gov/docs/fact_sheets/DOEEMNV_0007.pdf
- Waste Disposal at the NNSS:
  https://www.nnss.gov/docs/fact_sheets/DOENV_540.pdf
- Transporting Waste to the NNSS:
  https://www.nnss.gov/docs/fact_sheets/DOENV_990.pdf
- Radioactive Waste Acceptance Program:
  https://www.nnss.gov/docs/fact_sheets/DOENV_671.pdf
- Waste Generator Services & Technical Support:
  https://www.nnss.gov/docs/fact_sheets/DOENV_596.pdf

# Environmental Management (EM) Complex Overview

**Robert Boehlecke**
Program Manager
EM Nevada Program
October 27, 2020

# History of EM

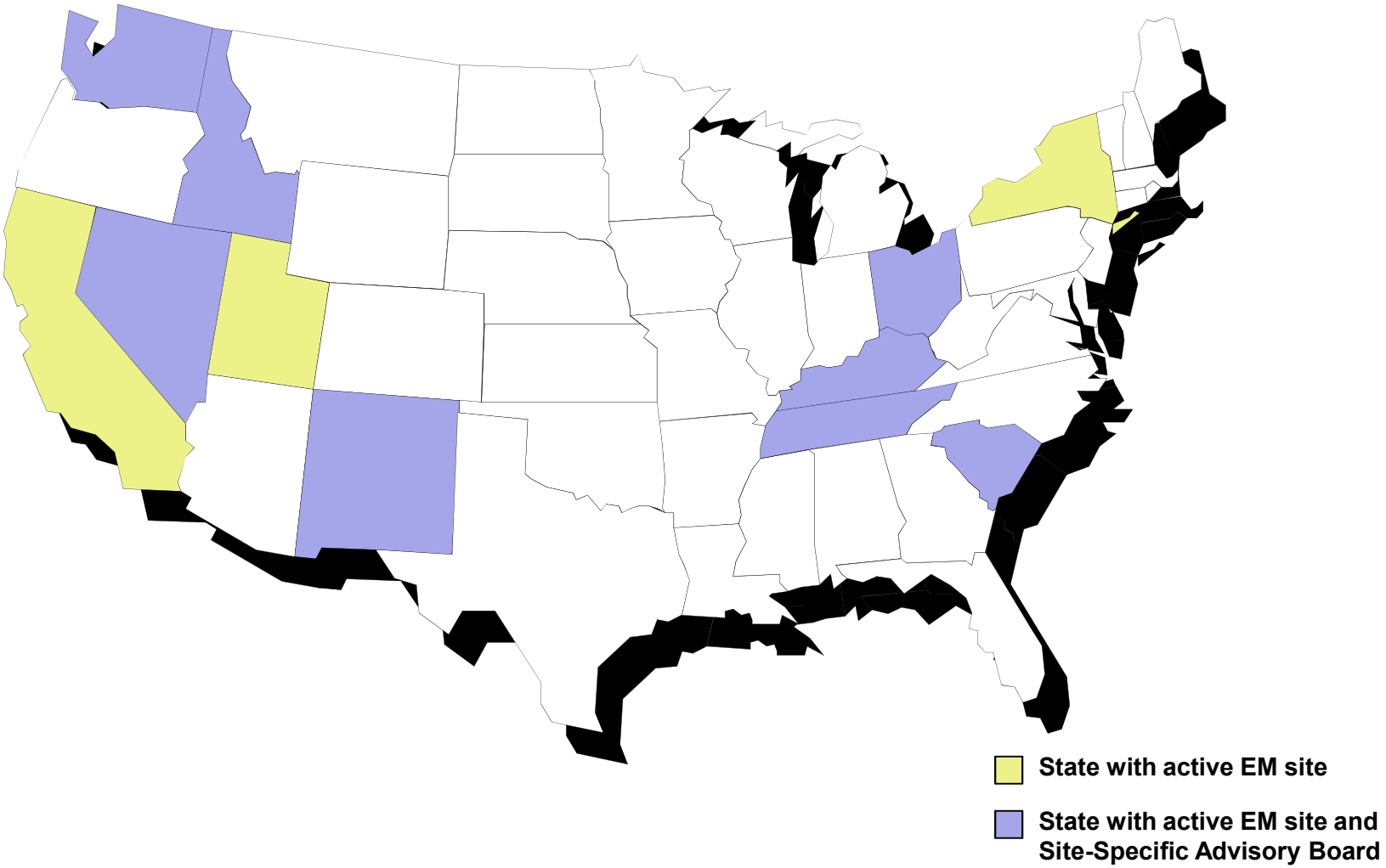
- Activities associated with the development, testing, and maintenance of the U.S. nuclear weapons complex resulted in the contamination of water, soil, and structures, and the generation of waste byproducts, that will remain radioactive for many years

- U.S. Department of Energy (DOE) created the Office of EM in 1989 to clean-up legacy contamination resulting from these activities

# National EM Program Responsibility

- EM is responsible for:
  - Remediating extensive surface and groundwater contamination
  - Safe disposal of nuclear waste
  - Demolition and disposal of contaminated facilities no longer needed

# EM Sites


State with active EM site
State with active EM site and Site-Specific Advisory Board

# Hanford (Washington)

# Hanford (Washington)
(continued)

- Located in southeastern Washington State; Columbia River runs through the northern portion of the site; Richland is located on the southern border of the Site
- Established in 1943 for plutonium production, chemical processing, and research and development of nuclear weapons
- Current mission is to manage facilities and inventories of special materials, remediate contamination, and support national research efforts in environmental and other sciences

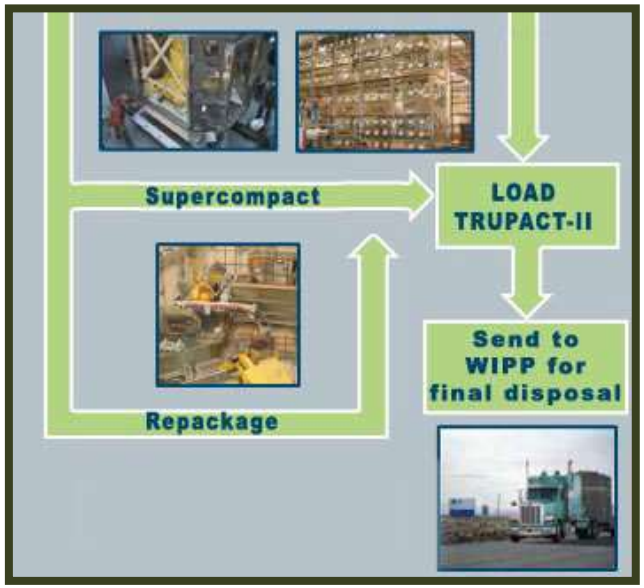
Workers prepare to load demolition waste from Hanford's Plutonium Finishing Plant

# Idaho

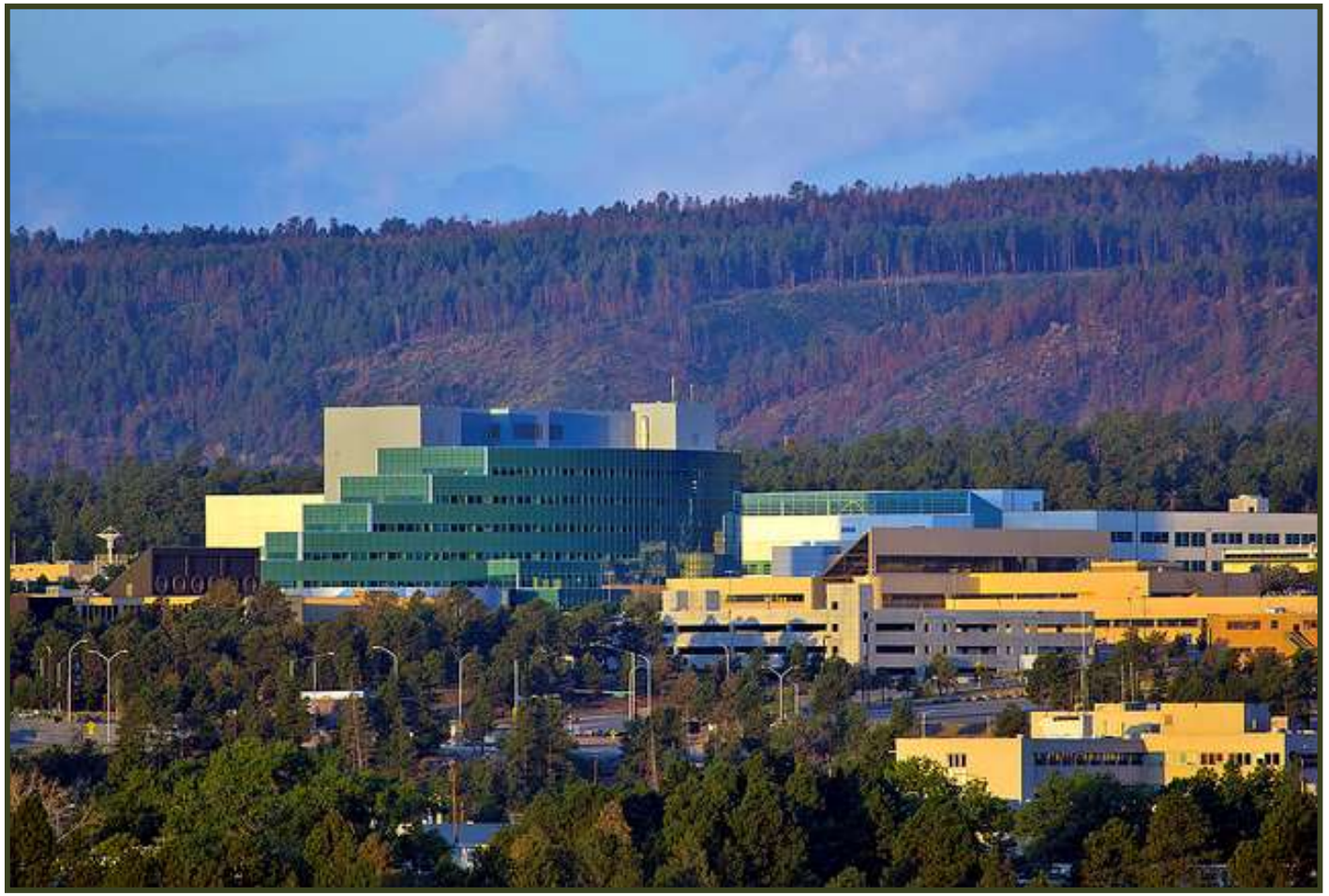

Test Area North
INL Site
Naval Reactors Facility
Reactor Technology Complex
Idaho Nuclear Technology and Engineering Center
Materials and Fuels Complex
Critical Infrastructure Test Range Complex
Central Facilities Area
Power Burst Facility
Research and Education Campus
Radioactive Waste Management Complex

# Idaho
(continued)

- Located in southeastern Idaho desert near northwest end of the Snake River Plain, 25 miles west of Idaho Falls
- Established in 1949 – missions included designing and testing nuclear reactors and reprocessing spent nuclear fuel
- Current missions include nuclear energy research, national security, and EM



# Los Alamos (New Mexico)



# Los Alamos (New Mexico)
(continued)

- Located in north-central New Mexico, approximately 60 miles northeast of Albuquerque and 25 miles northwest of Santa Fe
- Established in 1943 as Site Y of the Manhattan Project for a single purpose: to design and build an atomic bomb
- Current missions includes multi-program national laboratory with research and development programs in broad range of scientific and technical fields; and environmental risk reduction relative to current activity as well as remediation of legacy waste

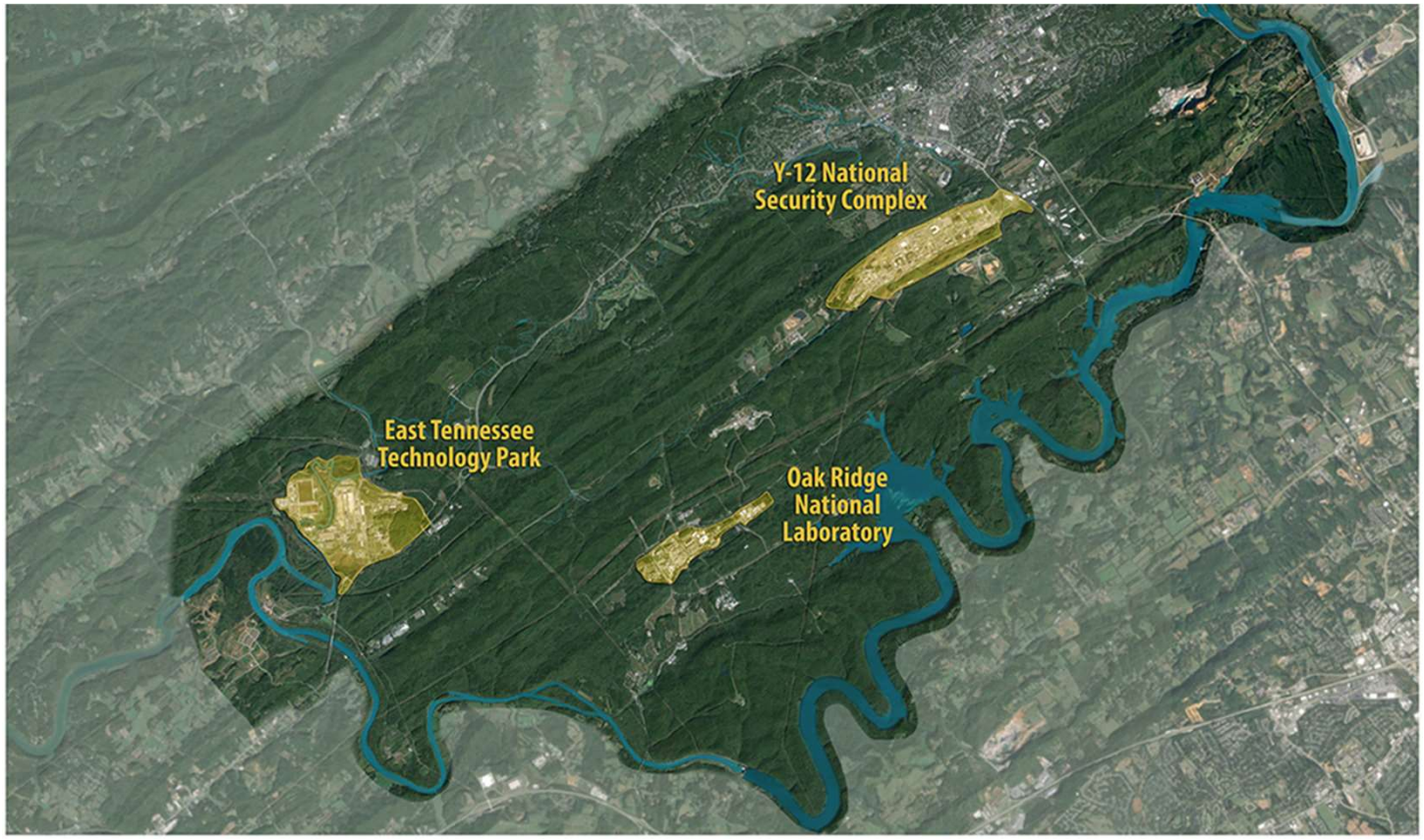

Los Alamos National Laboratory (LANL) Workers Prepare Waste Container for Shipment to Waste Isolation Pilot Plant

# Nevada National Security Site (NNSS)

- Located in the southern Nevada desert 65 miles northwest of Las Vegas
- Established in 1950 to conduct field testing of nuclear explosives
  - 100 total atmospheric tests (until 1962)
  - 828 total underground tests (until 1992)
- Current missions are National Security and EM

Workers Measure Grids Prior to Collecting Soil Samples at the NNSS

# Oak Ridge Reservation (Tennessee)




More than 30,000 acres located in East Tennessee, entirely within the city limits of Oak Ridge, and bordered by the Clinch River to the south and west.

# Oak Ridge Reservation (Tennessee)

- "Secret City" established in early 1940s as part of the World War II the Manhattan Project to produce enriched uranium.
- Current missions: **Oak Ridge National Laboratory**, a world-class research facility with ongoing science, technology and other research; **Y-12 National Security Complex**, used for disassembly of nuclear weapons and storage of uranium; and **East Tennessee Technology Park**, a former uranium enrichment site being converted to an industrial park through transfers of remediated property to the community.
- Each of these three sites has unique cleanup needs due to contamination from their past operations and EM is reducing a wide range of physical, chemical, and nuclear hazards.

# Paducah Gaseous Diffusion Plant (Kentucky)

# Paducah Gaseous Diffusion Plant (Kentucky)
(continued)

- Located in rural western Kentucky, 15 miles from the city of Paducah near the Ohio and Mississippi rivers; sister-site to the Portsmouth plant in Piketon, Ohio
- Established in 1952 to produce enriched uranium for the Federal Government and commercial nuclear power and later for low-enriched uranium production
- Current missions include environmental cleanup, waste management, depleted uranium conversion, and deactivation and decommissioning

# Portsmouth Gaseous Diffusion Plant (Ohio)

# Portsmouth Gaseous Diffusion Plant (Ohio)
(continued)

- Located in Piketon, Ohio along the Scioto River
- Established in 1954 to support expansion of highly-enriched uranium production for military reactors and nuclear weapons and later for low-enriched uranium production for nuclear power plants
- Current missions include decontamination and decommissioning of the former gaseous diffusion plant, conversion of the site's depleted uranium hexafluoride inventory, and other soil and groundwater remediation efforts

# Savannah River Site (South Carolina)

# Savannah River Site (South Carolina)
(continued)

- Located in South Carolina on the Savannah River which borders Georgia; close to Augusta, Georgia, and Aiken, South Carolina
- Established in the early 1950s to produce basic materials used to fabricate nuclear weapons, primarily tritium and plutonium-239
- Savannah River Site missions remain vital to the Nation
  - Support the Environmental Management priority to safely and efficiently clean up the environmental legacy, reduce risk and protect public health and the environment (Defense Waste Processing Facility)
  - Support National Nuclear Security Administration missions with key role in meeting nonproliferation objectives (MOX, H Canyon)
  - Support Office of Nuclear Energy goals to provide clean, reliable energy sources, reduce greenhouse gases and enhance national security (Biomass Cogeneration Facility)
  - Savannah River National Laboratory (Putting Science to Work – Underpinning of Site missions)

# EM Sites Working Together

- Sites offering essential complex-wide cleanup resources
  - NNSS – low-level and mixed low-level waste disposal
  - Savannah River – transuranic waste consolidation in preparation for disposal at the Waste Isolation Pilot Plant
  - Waste Isolation Pilot Plant (New Mexico) – legacy defense-generated transuranic waste disposal


Fernald Before Cleanup
Began in 1991

Fernald After Cleanup
Completed in 2006

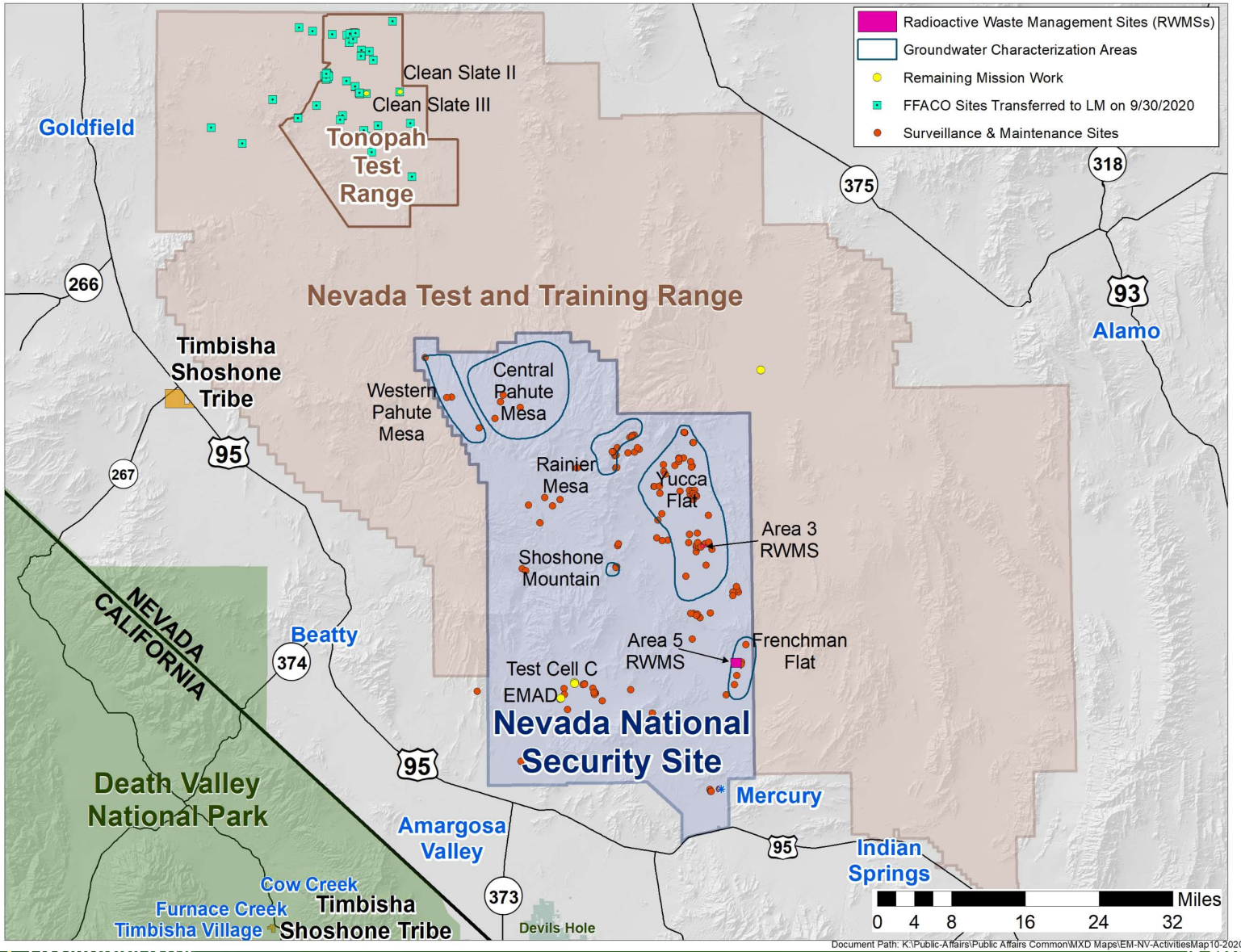
# Environmental Management (EM) in Nevada

**Robert Boehlecke**
Program Manager
EM Nevada Program
October 27, 2020

# History and Nature of the Nevada National Security Site (NNSS)

- Historic nuclear weapons testing conducted from 1951 to 1992
  - 100 atmospheric tests
  - 828 underground tests
  - Nuclear reactor/rocket development
- 1,360 square miles of federally-owned/controlled land
  - Surrounded by 4,500 square miles of federally-owned/controlled land
  - 90% of NNSS land undisturbed by historic and current missions

# EM Nevada Program Activity Locations



# Federal Responsibilities at NNSS

- National Nuclear Security Administration (NNSA) responsible for primary mission activities:
  - Stockpile stewardship
  - National defense programs
  - National security research, development, and training
- EM Nevada Program responsible for legacy cleanup:
  - Remediation of soil and structures
  - Groundwater characterization
  - Post-closure monitoring
  - Waste acceptance and disposal

# Contractor Responsibilities

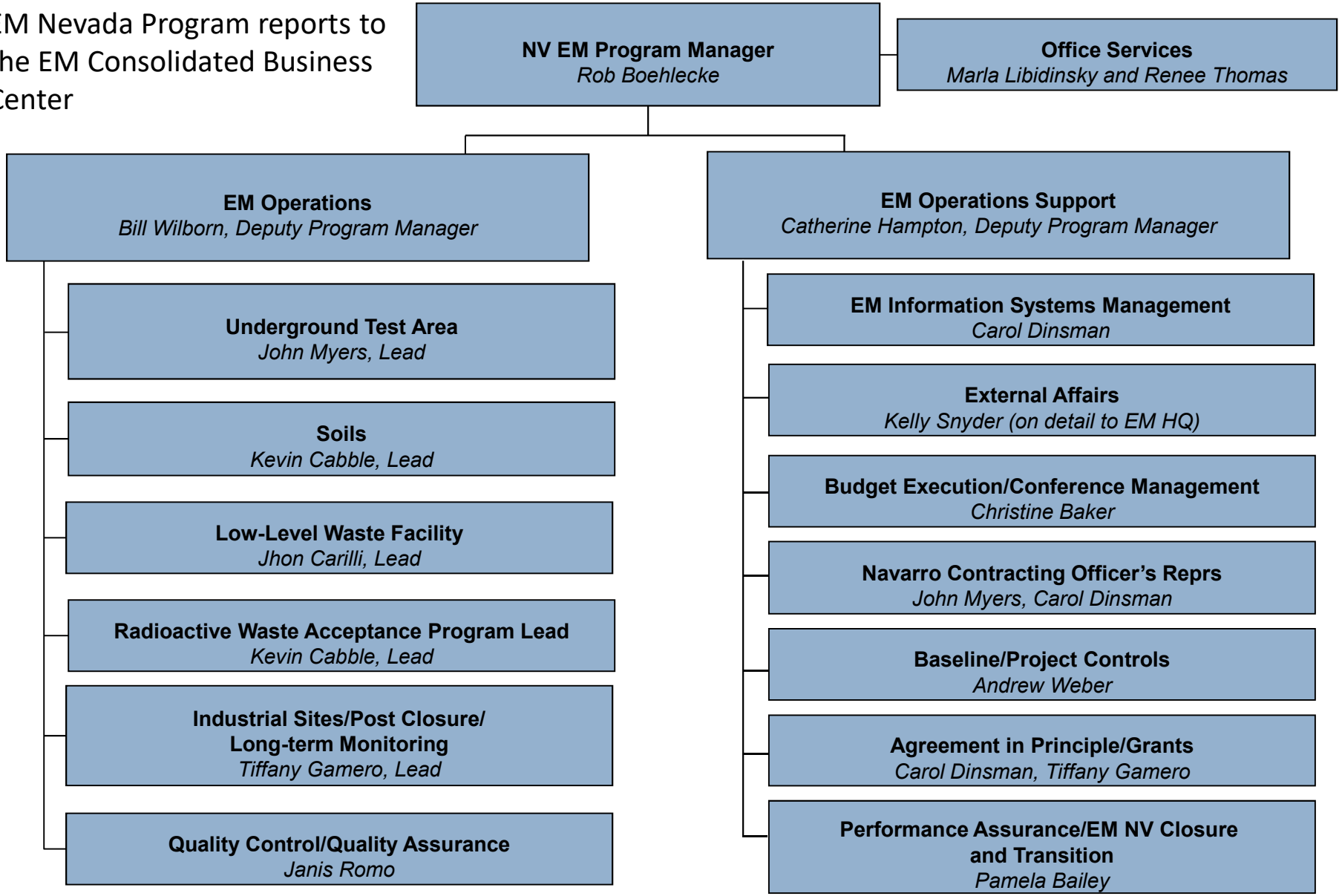
- Navarro Research and Engineering, Inc. (Navarro)
  - Groundwater characterization and monitoring, Radioactive Waste Acceptance Program management, Soils and Industrial Sites close-out/post-closure monitoring, deactivation and demolition, program management support (includes NSSAB)
- Mission Support and Test Services, LLC (MSTS)
  - NNSS Management & Operating (M&O), NNSS facility maintenance, construction, drilling, thermoluminescent dosimeter (TLD) analyses, calibration and respiratory protection support, operation of the Area 3 Radioactive Waste Management Site (RWMS) and Area 5 Radioactive Waste Management Complex (RWMC)

# Contractor Responsibilities
(continued)

- Desert Research Institute (DRI)
  - Modeling, geophysics, cultural and ecological surveys, laboratory studies, Community Environmental Monitoring Program, re-vegetation
- Lawrence Livermore (LLNL) and Los Alamos National Laboratories (LANL)
  - Source-term analysis, modeling, radiochemistry, laboratory studies
- U.S. Geological Survey (USGS)
  - Water level measurement, hydrogeology, geologic core library, regional model

# EM Nevada Program Organization

EM Nevada Program reports to the EM Consolidated Business Center



# EM Consolidated Business Center (EMCBC)

- Mission: provide an integrated services center with a valued, dedicated and well-trained staff to execute exemplary core business and technical services that are focused on the safe, compliant and efficient execution of EM activities at supported sites

**Consolidated Functions:**

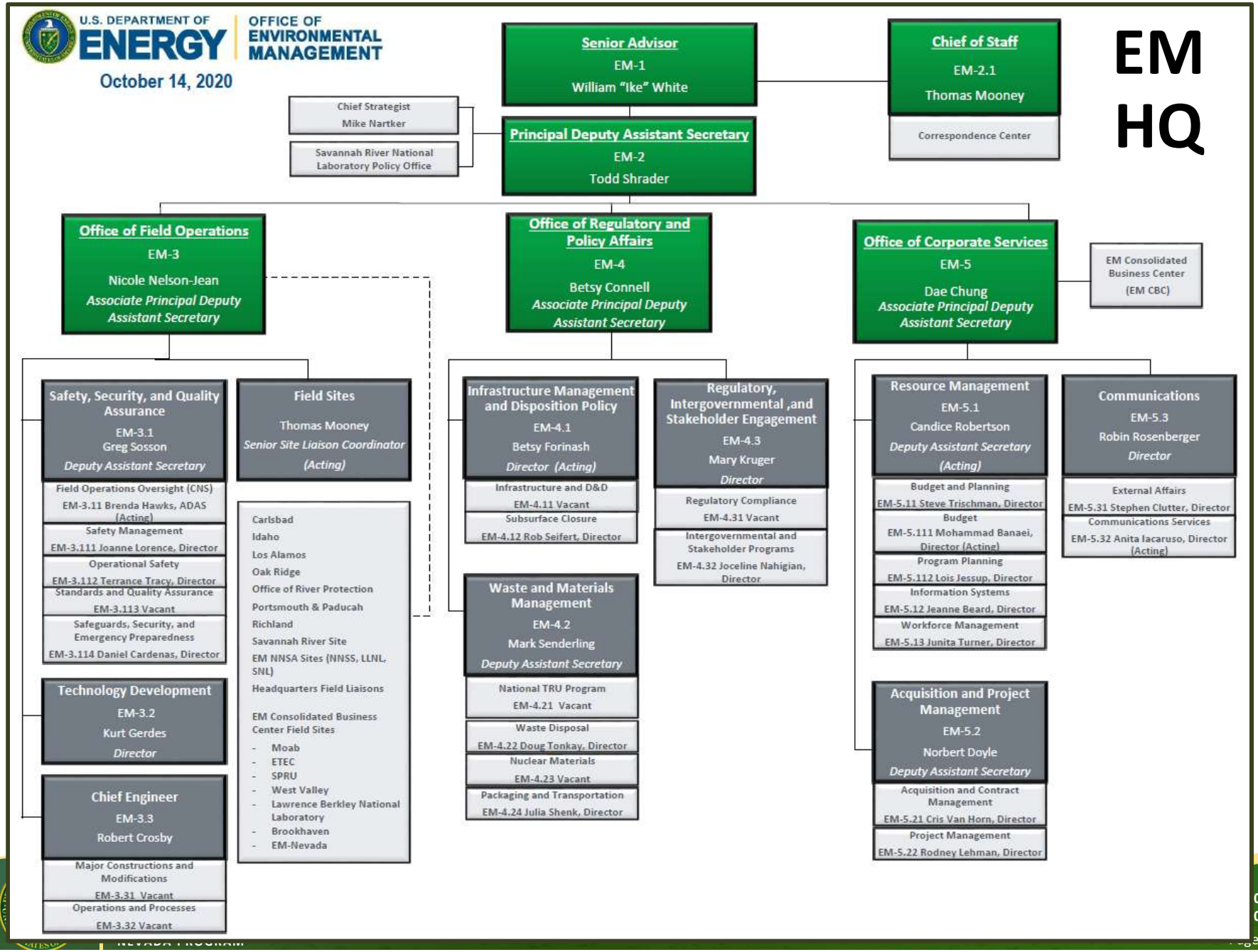
- Asset Management (Real & Personal Property)
- Contracting
- Cost Estimating
- Financial Management
- Information Resource Management
- Legal Services
- Project Management
- Technical Support (Environmental Safety, Health, and Quality Assurance, Emergency, Security, Transportation, Classification Office)
- Records Management Services & Resources
- Business Partner Support to multiple locations

EMCBC Building in Cincinnati, OH

# EMCBC Supported Sites


## EMCBC Cleanup Sites:

- Brookhaven National Laboratory
- Energy Technology Engineering Center
- Lawrence Berkeley National Laboratory
- Lawrence Livermore National Laboratory
- Moab Uranium Mill Tailing Remedial Action
- Nevada National Security Site
- Separations Process Research Unit
- West Valley Demonstration Project


U.S. DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL MANAGEMENT
October 14, 2020
EM HQ
Senior Advisor
EM-1
William "Ike" White
Chief of Staff
EM-2.1
Thomas Mooney
Correspondence Center
Chief Strategist
Mike Nartker
Savannah River National Laboratory Policy Office
Principal Deputy Assistant Secretary
EM-2
Todd Shrader
Office of Field Operations
EM-3
Nicole Nelson-Jean
Associate Principal Deputy Assistant Secretary
Office of Regulatory and Policy Affairs
EM-4
Betsy Connell
Associate Principal Deputy Assistant Secretary
Office of Corporate Services
EM-5
Dae Chung
Associate Principal Deputy Assistant Secretary
EM Consolidated Business Center (EM CBC)
Safety, Security, and Quality Assurance
EM-3.1
Greg Sosson
Deputy Assistant Secretary
Field Operations Oversight (CNS)
EM-3.11 Brenda Hawks, ADAS (Acting)
Safety Management
EM-3.111 Joanne Lorence, Director
Operational Safety
EM-3.112 Terrance Tracy, Director
Standards and Quality Assurance
EM-3.113 Vacant
Safeguards, Security, and Emergency Preparedness
EM-3.114 Daniel Cardenas, Director
Field Sites
Thomas Mooney
Senior Site Liaison Coordinator (Acting)
Carlsbad
Idaho
Los Alamos
Oak Ridge
Office of River Protection
Portsmouth & Paducah
Richland
Savannah River Site
EM NNSA Sites (NNSS, LLNL, SNL)
Headquarters Field Liaisons
EM Consolidated Business Center Field Sites
- Moab
- ETEC
- SPRU
- West Valley
- Lawrence Berkley National Laboratory
- Brookhaven
- EM-Nevada
Technology Development
EM-3.2
Kurt Gerdes
Director
Chief Engineer
EM-3.3
Robert Crosby
Major Constructions and Modifications
EM-3.31 Vacant
Operations and Processes
EM-3.32 Vacant
Infrastructure Management and Disposition Policy
EM-4.1
Betsy Forinash
Director (Acting)
Infrastructure and D&D
EM-4.11 Vacant
Subsurface Closure
EM-4.12 Rob Seifert, Director
Regulatory, Intergovernmental ,and Stakeholder Engagement
EM-4.3
Mary Kruger
Director
Regulatory Compliance
EM-4.31 Vacant
Intergovernmental and Stakeholder Programs
EM-4.32 Joceline Nahigian, Director
Waste and Materials Management
EM-4.2
Mark Senderling
Deputy Assistant Secretary
National TRU Program
EM-4.21 Vacant
Waste Disposal
EM-4.22 Doug Tonkay, Director
Nuclear Materials
EM-4.23 Vacant
Packaging and Transportation
EM-4.24 Julia Shenk, Director
Resource Management
EM-5.1
Candice Robertson
Deputy Assistant Secretary (Acting)
Budget and Planning
EM-5.11 Steve Trischman, Director
Budget
EM-5.111 Mohammad Banaei, Director (Acting)
Program Planning
EM-5.112 Lois Jessup, Director
Information Systems
EM-5.12 Jeanne Beard, Director
Workforce Management
EM-5.13 Junita Turner, Director
Communications
EM-5.3
Robin Rosenberger
Director
External Affairs
EM-5.31 Stephen Clutter, Director
Communications Services
EM-5.32 Anita Iacaruso, Director (Acting)
Acquisition and Project Management
EM-5.2
Norbert Doyle
Deputy Assistant Secretary
Acquisition and Contract Management
EM-5.21 Cris Van Horn, Director
Project Management
EM-5.22 Rodney Lehman, Director

# EM Nevada Program Activities

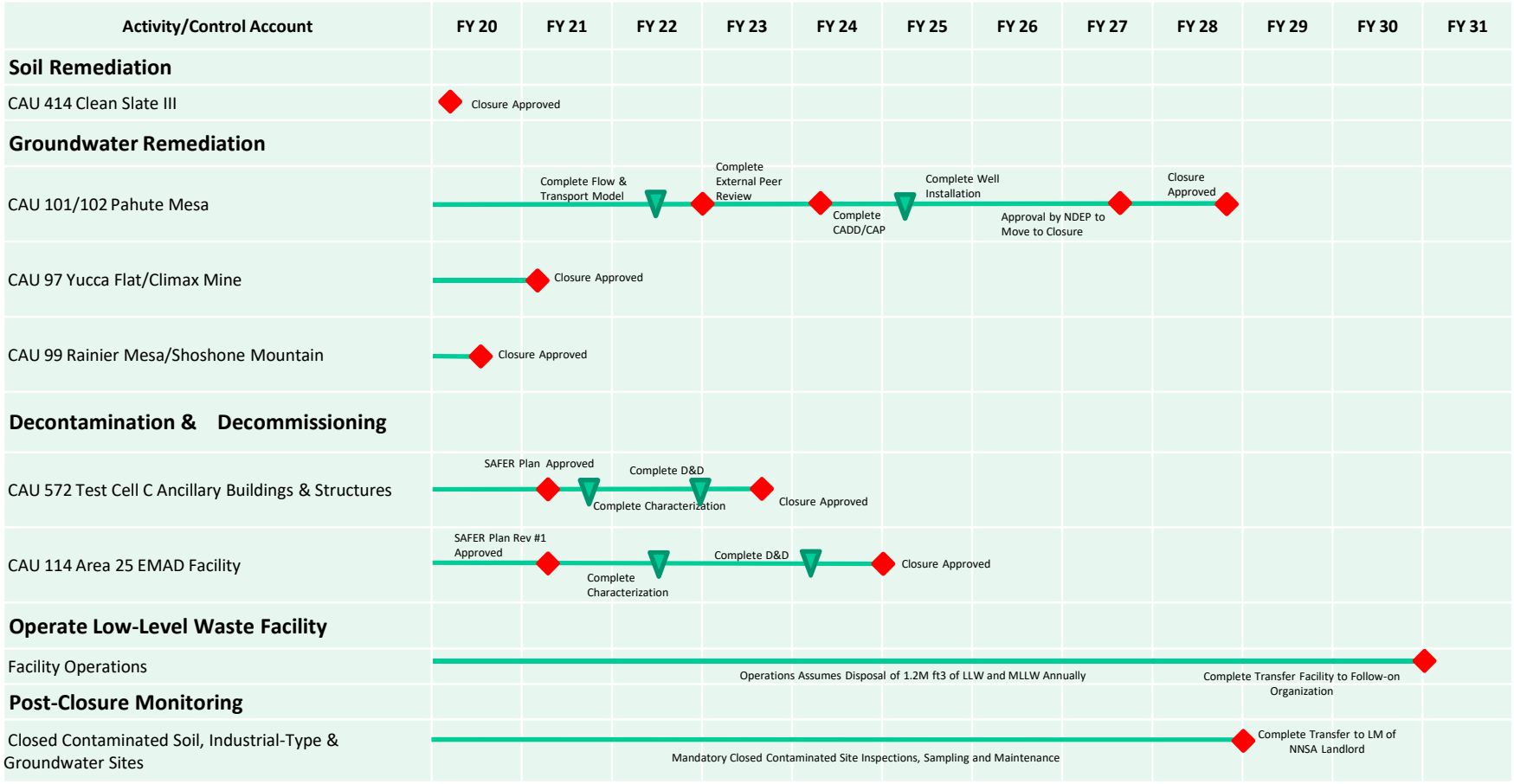
- Underground Test Area (Groundwater)
- Industrial Sites
- Soils

- Waste Transportation and Disposal
- Radioactive Waste Acceptance Program
- Post-closure monitoring

# EM Nevada Program Baseline for Fiscal Year (FY) 2021

| Scope | Baseline ($K) |
|---|---|
| Soils Remediation (Completed) | $0 |
| Groundwater Remediation | $11,988 |
| Industrial Sites Facilities Deactivation and Decommissioning | $3,866 |
| Post-Closure Sampling, Monitoring and Maintenance | $5,373 |
| Operate Low-Level Waste Disposal Facility | $27,888 |
| Program Management | $9,713 |
| Agreements in Principle and Grants | $5,220 |
| **EM Nevada Program Total** | $64,048 |

# EM Nevada Life-cycle Baseline Schedule

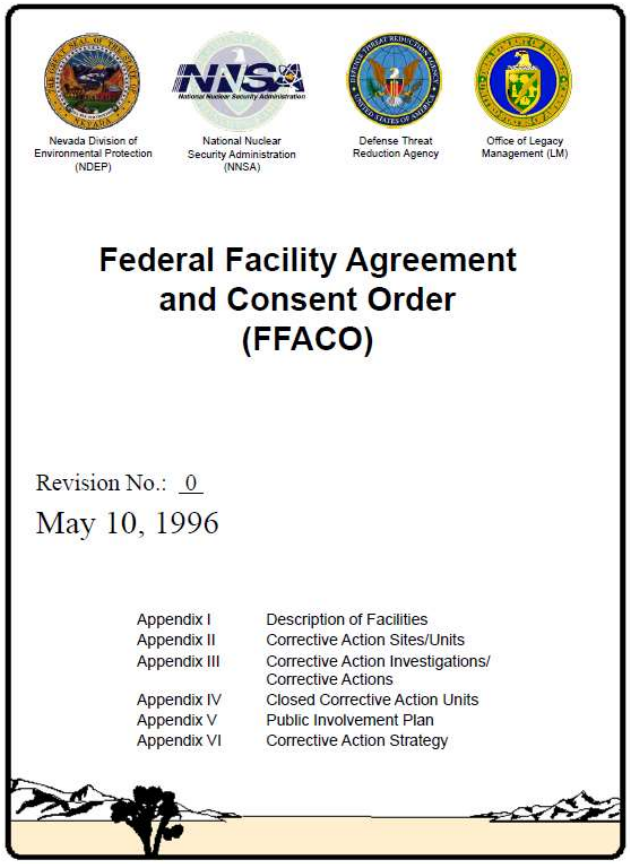


# State of Nevada Role

- The State of Nevada Division of Environmental Protection (NDEP) provides programmatic and regulatory oversight of Environmental Restoration and Waste Management activities conducted by the EM Nevada Program
- Participates as NSSAB liaison
- Member of the Waste Acceptance Review Panel
- Issues Resource Conservation and Recovery Act (RCRA) Part B permit that regulates hazardous waste management, including disposal of MLLW at the NNSS

# Federal Facility Agreement and Consent Order

- Outlines a schedule of cleanup and monitoring commitments for sites contaminated by historic nuclear testing activities on the NNSS and portions of the NTTR
- Formalizes relationships among the State of Nevada, DOE, and the U.S. Department of Defense
- Identifies sites of potential historic contamination and prioritizes them for cleanup
- Defines the regulations the State of Nevada will use to direct and enforce corrective action activities
- Provides public involvement opportunities
- Establishes a corrective action strategy for cleanup activities


Nevada Division of Environmental Protection (NDEP)
National Nuclear Security Administration (NNSA)
Defense Threat Reduction Agency
Office of Legacy Management (LM)

**Federal Facility Agreement and Consent Order (FFACO)**

Revision No.: 0
May 10, 1996

| | |
|---|---|
| Appendix I | Description of Facilities |
| Appendix II | Corrective Action Sites/Units |
| Appendix III | Corrective Action Investigations/ Corrective Actions |
| Appendix IV | Closed Corrective Action Units |
| Appendix V | Public Involvement Plan |
| Appendix VI | Corrective Action Strategy |

# Agreements in Principle (AIP)

- EM Nevada Program provides funding to NDEP for:
  - Activities in support of monitoring air, groundwater, surface water, and waste management activities to provide an independent evaluation of environmental conditions for use in determining compliance with applicable state and federal requirements
  - Definition of roles and responsibilities; understandings and commitments of NNSA and NDEP with regard to waste acceptance at the NNSS

# AIP
(continued)

- EM Nevada Program provides funding to the State of Nevada Division of Emergency Management (NDEM) for:
  - Activities in support of Emergency Preparedness Working Group to include managing the distribution of DOE-provided funding for Nevada counties along waste transportation routes ($.50 per cubic foot of waste disposed at NNSS)
  - Activities in coordination of emergency management capabilities and participation in emergency response and preparedness activities performed under the terms of the Agreement consistent with specific priorities agreed upon between NDEM and NNSA

# Environmental Management Outreach Initiatives

**Jesse Sleezer**
Strategic Communications Manager
Navarro Research and Engineering, Inc.
October 27, 2020

# Environmental Management Outreach Initiatives

- Variety of methods and tools used to engage stakeholders in Environmental Management (EM) Nevada activities:
  - Nevada Site Specific Advisory Board
  - Intergovernmental Liaisons
  - Low-Level Waste (LLW) Stakeholders Forum
  - Public presentations
  - Educational demonstrations
  - Virtual events
  - Open houses
  - Articles / press releases
  - Fact sheets
  - Social media
  - Kiosks / displays
  - Operation Clean Desert
  - Community conversations

# NSSAB, Intergovernmental Stakeholders, LLW Stakeholders Forum

- Nevada Site Specific Advisory Board (NSSAB) and Intergovernmental Liaison meetings generally held every other month
  - Recent NSSAB Recruitment Drive yielded nine new members, approved by EM-1 on October 19, 2020


- LLW Stakeholders Forum provides participants an opportunity to discuss and share information related to the transportation and disposal of LLW at the Nevada National Security Site (NNSS)
  - Participating organizations include National Nuclear Security Administration, Mission Support and Test Services, LLC, NV Department of Transportation, Nevada Highway Patrol, State of NV Division of Environmental Protection, NV Division of Emergency Management, Clark County, Nye County, State of Nevada, emergency response personnel, and an NSSAB member

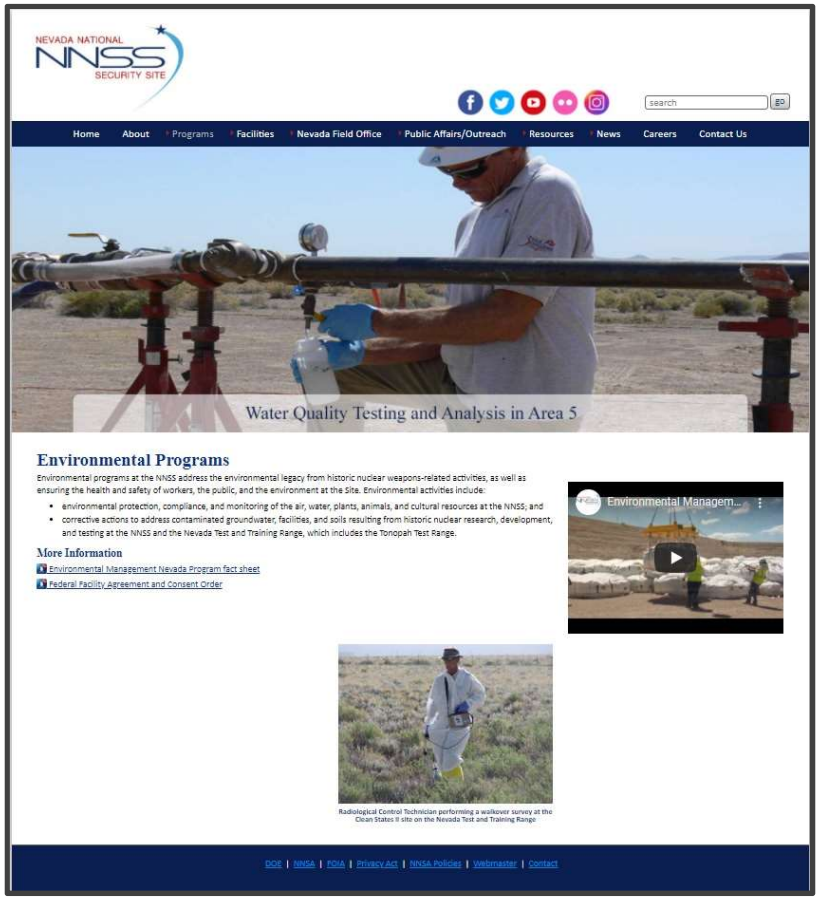
# Virtual Outreach Initiatives

- Program continues to meet its commitments to stakeholders through virtual and/or in-person interactions
- Successful virtual events since March:
  - 2020 Waste Generator WebShop – 100 attendees from across U.S.
  - Three NSSAB meetings, including first with virtual public participation (July)
  - Three LLW Stakeholders Forum meetings
  - Virtual panel discussion at the 2020 RadWaste Summit
  - Various small group meetings with regulator, stakeholders, etc.


*Representatives from EM NV and NDEP discuss collaboration and communication at the 2020 RadWaste Summit*

# Web Presence

- EM Nevada website
  - www.nnss.gov/pages/programs/em/Environmental.html
  - Main source for EM Nevada information and updates
  - Sub pages for each Program mission
- NNSS remediation sites map
  - https://nnssremediation.dri.edu
  - Status for every Corrective Action Site
  - Links to NNSS cleanup site documents
- NSSAB website
  - https://www.nnss.gov/NSSAB/
  - Meeting minutes, agendas, reports



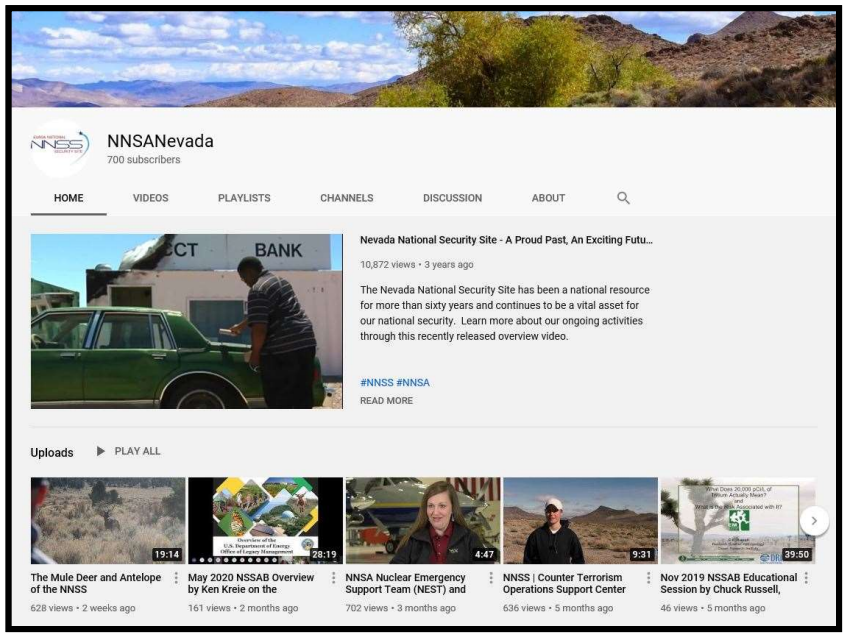
# Fact Sheets

Stakeholders can learn about EM activities from a wide selection of fact sheets and brochures, available in:

- Electronic version:
  - NNSS website
- Hard copy:
  - Public Reading Room (across lobby from National Atomic Testing Museum, Las Vegas)
  - Upon request in single or group quantities

# Social Media

- Facebook: facebook.com/NNSANevada
- YouTube: youtube.com/user/NNSANevada
- Twitter: twitter.com/NNSANevada
- Flickr: flickr.com/photos/nnsanevadasiteoffice
- Instagram: instagram.com/NNSANevada

# Articles

22 July 2020

EM NV News Brief

U.S. Department of Energy Environmental Management Nevada Program

## How EM Nevada's Route Monitoring Ensures Safety of Waste Shipments

LAS VEGAS - A 5.8-magnitude earthquake centered near Lone Pine, California recently prompted urgent notifications from the EM Nevada Program to waste generators shipping classified and low-level, and mixed low-level radioactive waste to the Nevada National Security Site (NNSS).

That rapid reaction to ever-changing regional road conditions is a routine occurrence that demonstrates the EM Nevada Program's commitment to the safe transportation of waste for the protection of people, workers, and the environment.

Following the earthquake, Lee Stevens, a transportation expert with Navarro Research and Engineering, the lead environmental program services contractor for EM Nevada, immediately relayed key information concerning regional road closures and conditions to waste generators with shipments en route to the NNSS. His quick thinking and proactive communication helped ensure the safety of drivers and their loads, minimized rerouting or shipping delays, and facilitated continuous situational awareness for DOE staff supporting NNSS waste management operations.

*Lee Stevens, a transportation expert with Navarro Research and Engineering, the lead environmental program services contractor for EM Nevada, uses the Nevada National Security Site-based Hazardous Materials Notification System to monitor and manage shipments from waste generators.*

"EM Nevada is doing great work to keep waste generators across the DOE complex aware of road and weather conditions on routes to the NNSS," EM Nevada Program Manager Rob Boehlecke said. "Lee's rapid response on June 24 not only helped to ensure the safety of drivers and their cargo, but also demonstrated that EM Nevada is ready, willing, and able to respond decisively to a more significant event if the need arises. I thank Lee and all of our transportation partners for their continued commitment to collaborative communication."

EM Nevada uses the NNSS-based Hazardous Materials Notification System (HAZTRAK), to monitor and manage such shipments. Applicable information from HAZTRAK is also accessible to intergovernmental partners and the general public on the NNSS website here.

- Publish articles locally and/or in HQ's EM Update newsletter
- Distribute via e-mail to over 30,300 NNSS news subscribers (public, employees and media) and published to NNSS website (www.nnss.gov)
- NSSAB members are automatically subscribed to receive via e-mail

# Community Conversations and Educational Demonstrations

- Community conversations
  - Provide information and gain community perspectives on specific issues, in a casual, one-on-one setting

- Educational demonstrations
  - Geared for classrooms, science fairs, community events

# Operation Clean Desert

- Geared toward educating 6th to 8th grade students (based on science curriculum objectives) on EM activities
- Offers Nevada schools and families learning program materials upon request and at no cost:
  - Student Workbooks
  - Teacher's Guide
  - Display
  - Interactive Computer Game (on-line only)
- Distributed over 49,000 student workbooks, computer games, and teacher guides

# Open Houses/Events

- To encourage an open dialogue with stakeholders, EM hosts:
  - Open House events with posters, discussions, demonstrations and handouts
  - Public meetings to gain community perspectives on specific issues or the release of documents/ information
  - Presentations at community events to ensure communities are aware of EM Nevada Program activities

# Displays

- Operation Clean Desert, Groundwater, Waste Disposal, and Transportation displays have been located at:
  - Public Reading Room
  - Pahrump Library
  - Caliente Library
  - Beatty Library
  - Amargosa Library
  - Esmeralda County Repository Oversight Office (Goldfield)
  - Central Nevada Museum (Tonopah)
  - White Pine County Library (Ely)


# Kiosks

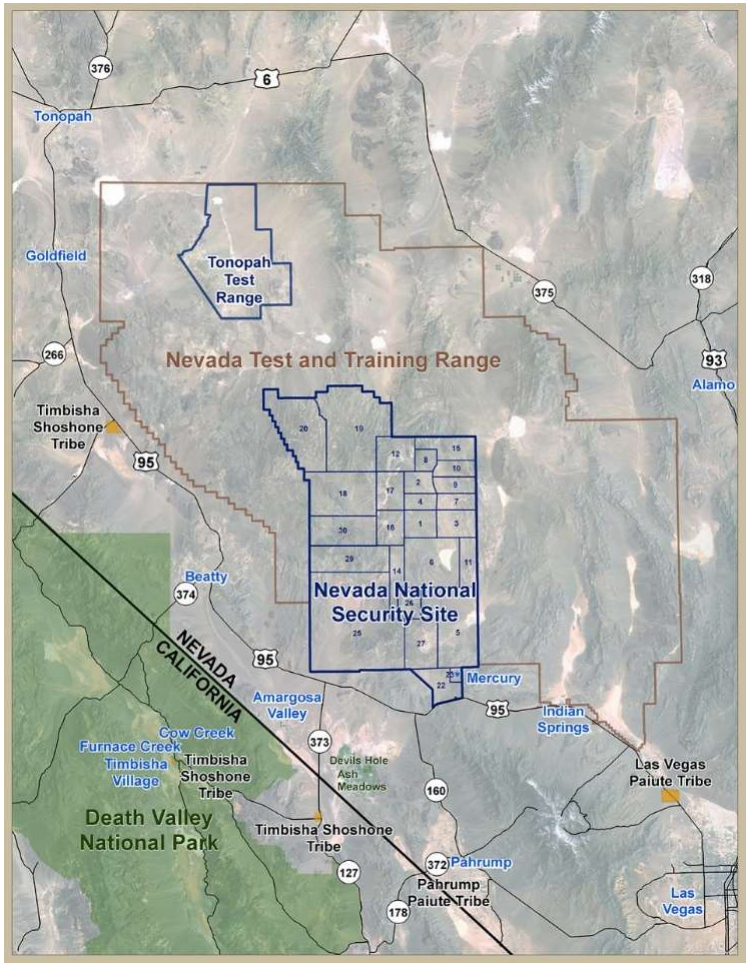
- Interactive, touch-screen system that connects to:
  - NNSS Internet and social media websites
  - Related government websites
- Two EM kiosks rotate at community facilities throughout Southern Nevada

# Soils
# Activity Overview

**Kevin Cabble, Soils Activity Lead**
U.S. Department of Energy (DOE)
Environmental Management (EM) Nevada Program
October 27, 2020

# Soils Background

- Atmospheric nuclear weapons tests, nuclear safety experiments, and evaluation tests for peaceful uses of nuclear explosives conducted at the Nevada National Security Site (NNSS) and the Nevada Test and Training Range (NTTR), including the Tonopah Test Range (TTR), resulted in radioactive contamination of surface and near surface soils
  - Fenced and/or posted radiation/ contamination area of the NNSS is less than one percent



# Soils Background (continued)

- The Soils activity is responsible for:
  - Characterizing and/or remediating surface soil contamination
    - Characterize means to identify the nature and extent of the contamination present
    - Remediating means to select a closure option (clean close, closure in place, etc)
  - Ensuring appropriate controls (i.e. postings, barriers, etc.) are in place at the sites with remaining contamination
  - Conducting long-term monitoring of sites
- State of Nevada Division of Environmental Protection (NDEP) provides oversight under the Federal Facility Agreement and Consent Order (FFACO)

# Terminology

- Corrective Action Site (CAS) - A site addressed under the same FFACO documents
- Corrective Action Unit (CAU) - A grouping of Corrective Action Sites that may or may not be similar and are addressed under the same FFACO documents

# Remediation Processes

- Corrective Action Investigation Plan (CAIP) – Details the investigation plan and provides information for planning investigation activities
- Site Investigation – Act of conducting field characterization activities
- Corrective Action Decision Document (CADD) – Describes the results of the characterization, multiple corrective action alternatives, and the recommended corrective action alternative and the rationale for its selection
- Corrective Action Plan (CAP) – Plan for implementing the selected corrective action

# Remediation Processes
(continued)

- Closure Field Work - Implementation of the selected corrective action at the site
- Closure Report (CR) – Documented overview and results of corrective actions implemented, closure verification information, and use restriction and monitoring requirements (when applicable)

***Note: All documents must be approved by NDEP***

# Alternative Remediation Processes

- CADD/CR can be used when only “minor” corrective actions are needed, as agreed to by NDEP
- CADD/CAP can be used when site knowledge gained through characterization and similar historical corrective actions is sufficient, as agreed to by NDEP, for planning corrective actions
- Streamlined Approach for Environmental Restoration (SAFER) process may be used only when extensive process knowledge or sampling data exists – this process combines the CAIP, CADD and CAP into one plan

# Soil Sites Results

- Closure completed at 100% of FFACO Soil CASs; 148 total
  - Completed six years early, saving an estimated $66M

Excavation of Contaminated Soil and Debris at Clean Slate III

Employees Conducting Field Activities – CAU 411

Employees Completing Vegetation Survey – CAU 411

# Soils FY 2020 Wrap Up

- Double Tracks (Corrective Action Unit [CAU] 411) and Clean Slate I (CAU 412)
  - Planned: Conduct final confirmation radiological surveys ~November 2019
    - Status: Completed surveys in August 2020

# Soils FY 2020 Wrap Up (continued)


Excavation of Contaminated Soil and Debris at Clean Slate III

- Clean Slate II (CAU 413) and Clean Slate III (CAU 414)
  - Planned: Revegetation of disturbed areas ~ Fall 2019
    - Status: Completed in November 2019
  - Planned: Conduct final confirmation radiological surveys ~ Spring 2020
    - Status: Currently conducting surveys; delayed due to COVID-19

# Soils FY 2021 Planned Activities


Excavation of Contaminated Soil and Debris – Clean Slate III

Contaminated Soil in Super Sacks – Clean Slate III

- Complete the final Status Survey Report for the Clean Slates and Double Tracks Sites

# Underground Test Area (UGTA) Groundwater Overview

**John Myers, UGTA Activity Lead**
U.S. Department of Energy (DOE)
Environmental Management (EM) Nevada Program
October 27, 2020

Groundwater at the NNSS:
https://www.youtube.com/watch?v=wJG-S0rMcms

# Historic Nuclear Testing Impacts on the Groundwater

- 828 underground nuclear tests conducted at the Nevada National Security Site (NNSS) from 1951 to 1992
- Underground tests conducted at depths ranging from approximately 90 to 4,800 feet below the ground surface
- One-third of these tests occurred near or below the water table
- Radioactive contamination not detected above the Safe Drinking Water Act maximum contaminant level (MCL) in groundwater beyond the NNSS

# NNSS Groundwater Program Objectives

- Due to the significant cost of groundwater remediation technologies and important potential risks to workers, the public, and the environment from exposure to contaminated groundwater, the DOE in consultation with the State of Nevada Division of Environmental Protection (NDEP) selected an end state that provides protection from contaminated groundwater with a modeling, monitoring, and institutional control strategy that is documented in the Federal Facilities Agreement and Consent Order (FFACO)
  - Identifies UGTA likely end state as closure in place with monitoring and institutional control
  - Requires defining a 95% contaminant boundary

# NNSS Groundwater Program Objectives (continued)

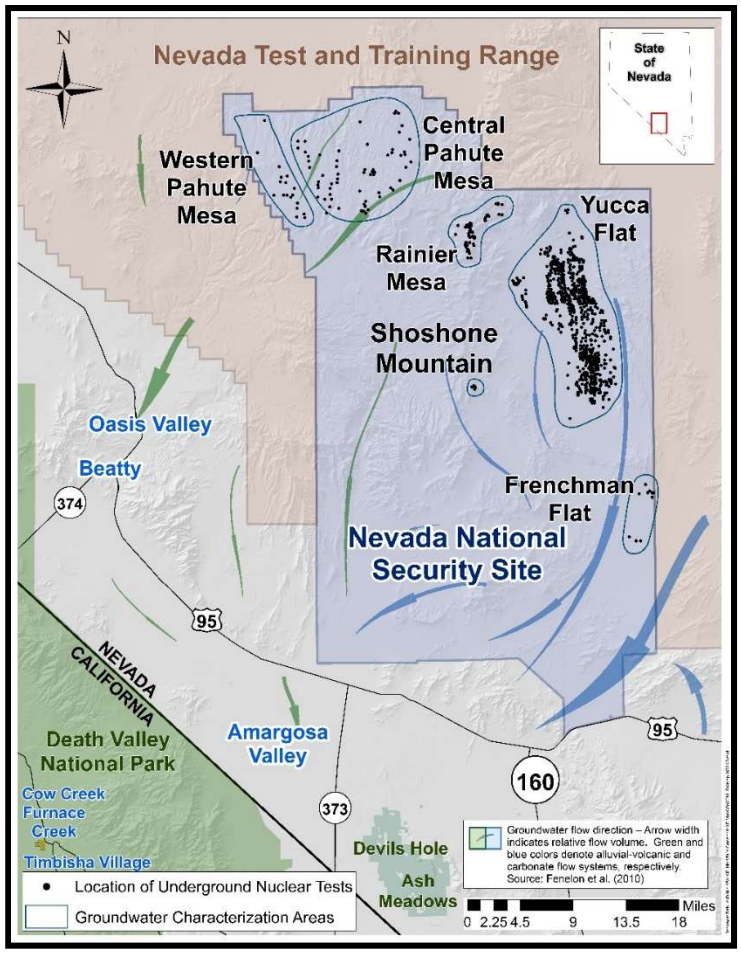
- This strategy is supported with the activities described below:
  - Tackle challenges using investigative methods, such as drilling wells to investigate the hydrology, geology, and extent of contamination
  - Sample wells, analyze samples, and build computer models from gathered data
  - Implement controls to prevent access to contaminated groundwater
  - Ongoing monitoring of wells on and off the NNSS
  - Establish a comprehensive long-term monitoring network to ensure public protection

# Technical Collaborating Organizations

- Staff work with outside organizations to ensure a collaborative approach to understand the nature and extent of groundwater contamination
  - Lawrence Livermore National Laboratory (LLNL)
  - Los Alamos National Laboratory (LANL)
  - Desert Research Institute (DRI)
  - United States Geological Survey (USGS)
  - State of Nevada Division of Environmental Protection (NDEP)
  - Mission Support and Test Services, LLC (MSTS)
  - Navarro Research and Engineering, Inc. (Navarro)

# UGTA Corrective Action Units (CAUs)

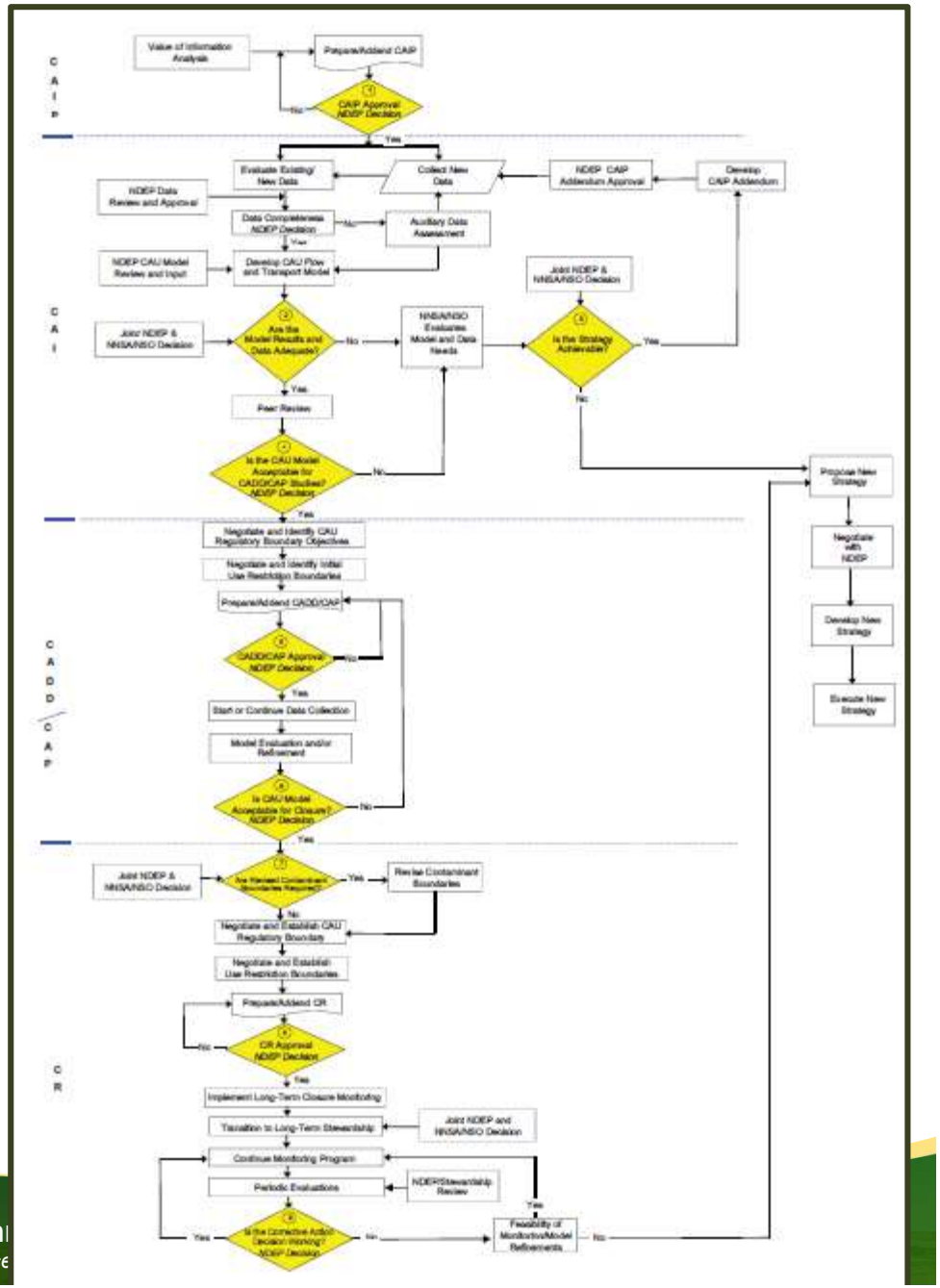
- There are five CAUs determined by location and geologic conditions that make up the UGTA (groundwater) Activity on the NNSS:
  - Frenchman Flat – 10 sites (CAU 98) – **COMPLETE** (in closure/long-term monitoring)
  - Rainier Mesa/Shoshone Mountain – 66 sites (CAU 99) – **COMPLETE** (in closure/long-term monitoring)
  - Yucca Flat/Climax Mine – 720 sites (CAU 97) **COMPLETE** (in closure/long-term monitoring)
  - Central Pahute Mesa* (CAU 101) and Western Pahute Mesa* (CAU 102) (data collection provided for a revised approach to closure that will reduce the time to reach closure)




**Western and Central Pahute Mesa are managed as one entity*

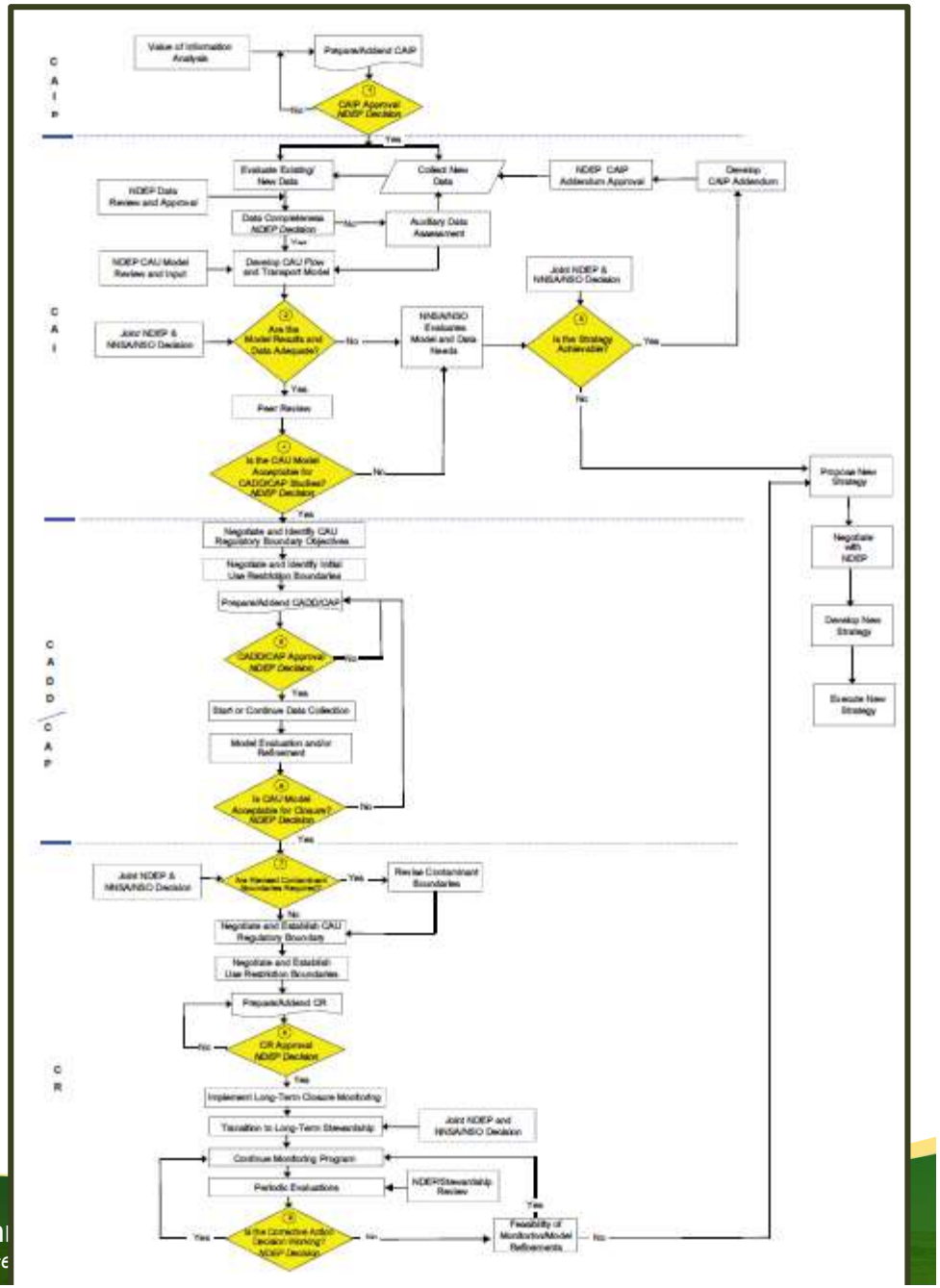
# UGTA Closure Strategy

- Outlined within the FFACO
- Corrective Action Investigation (some Corrective Action Units may require a Phase I and II)
  - Corrective Action Investigation Plan (CAIP)
  - Data collection
  - Modeling
  - Contaminant boundary
  - Peer review



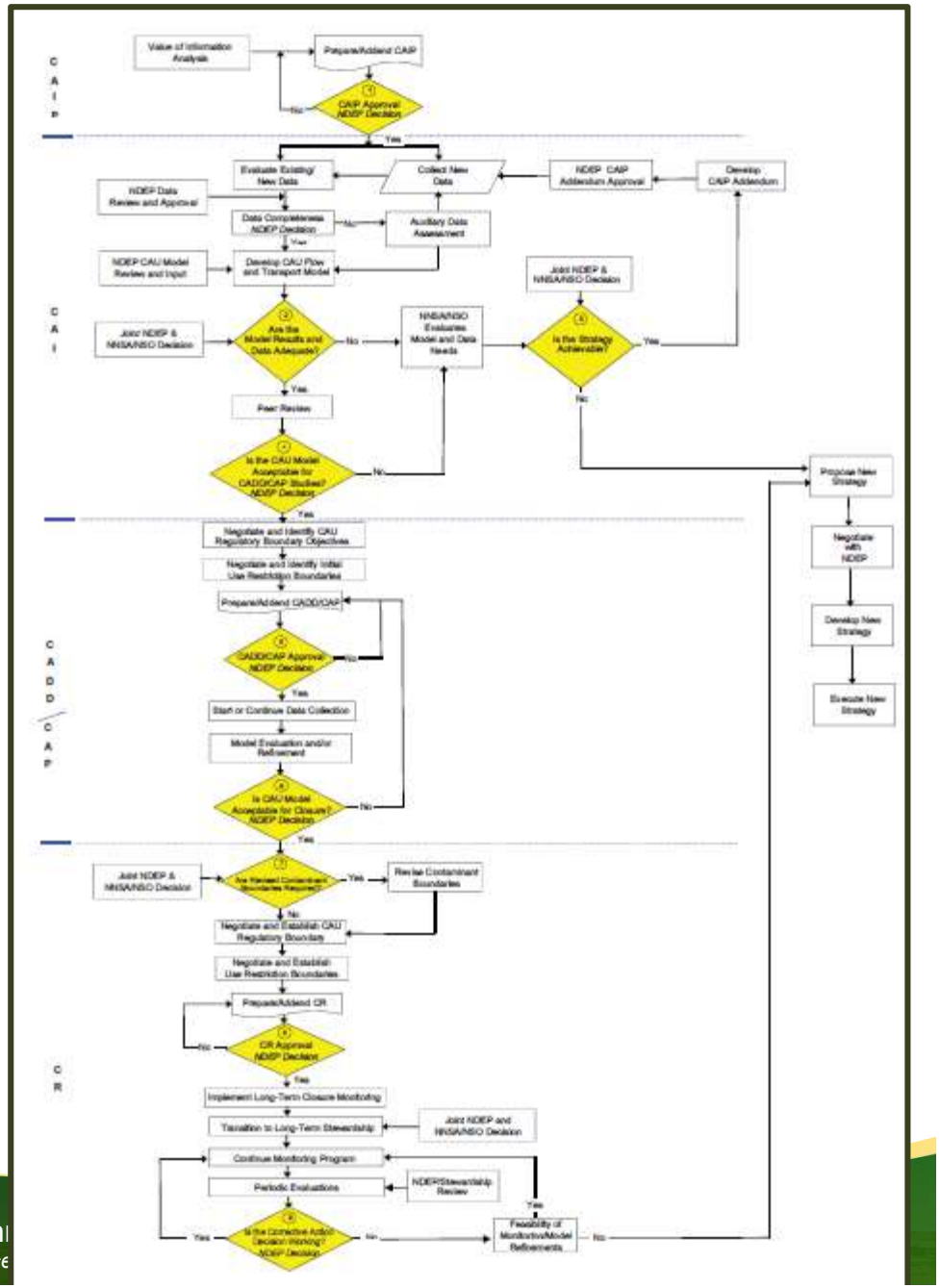
# UGTA Closure Strategy
(continued)

- Corrective Action Decision Document/Corrective Action Plan (CADD/CAP)
  - Model evaluation
  - Use restriction boundary
  - Regulatory boundary negotiations with NDEP



# UGTA Closure Strategy
(continued)

- Closure
  - Closure Report
  - Address regulatory boundary changes if necessary
  - Closure in place with long-term monitoring
  - Institutional controls

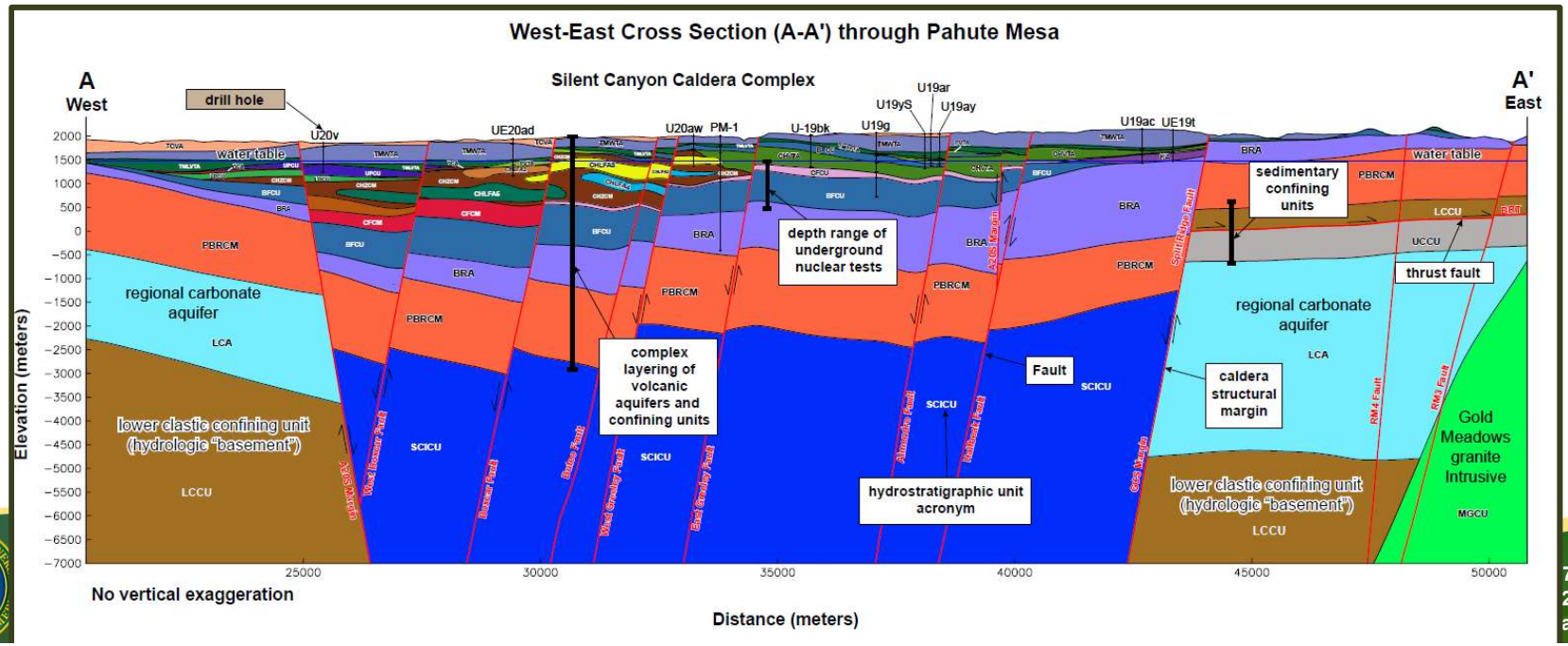


# Why Do We Drill?

- Provides access to the complex subsurface for sampling
  - More than 300 different geologic units (types of rock) representing more than 500 million years of geologic history
- Gives access to groundwater and surrounding geology
- Provides multiple/ongoing opportunities to sample and monitor
- In addition to recent groundwater studies, the UGTA team is tapping into, and expanding upon, over 50 years of groundwater research

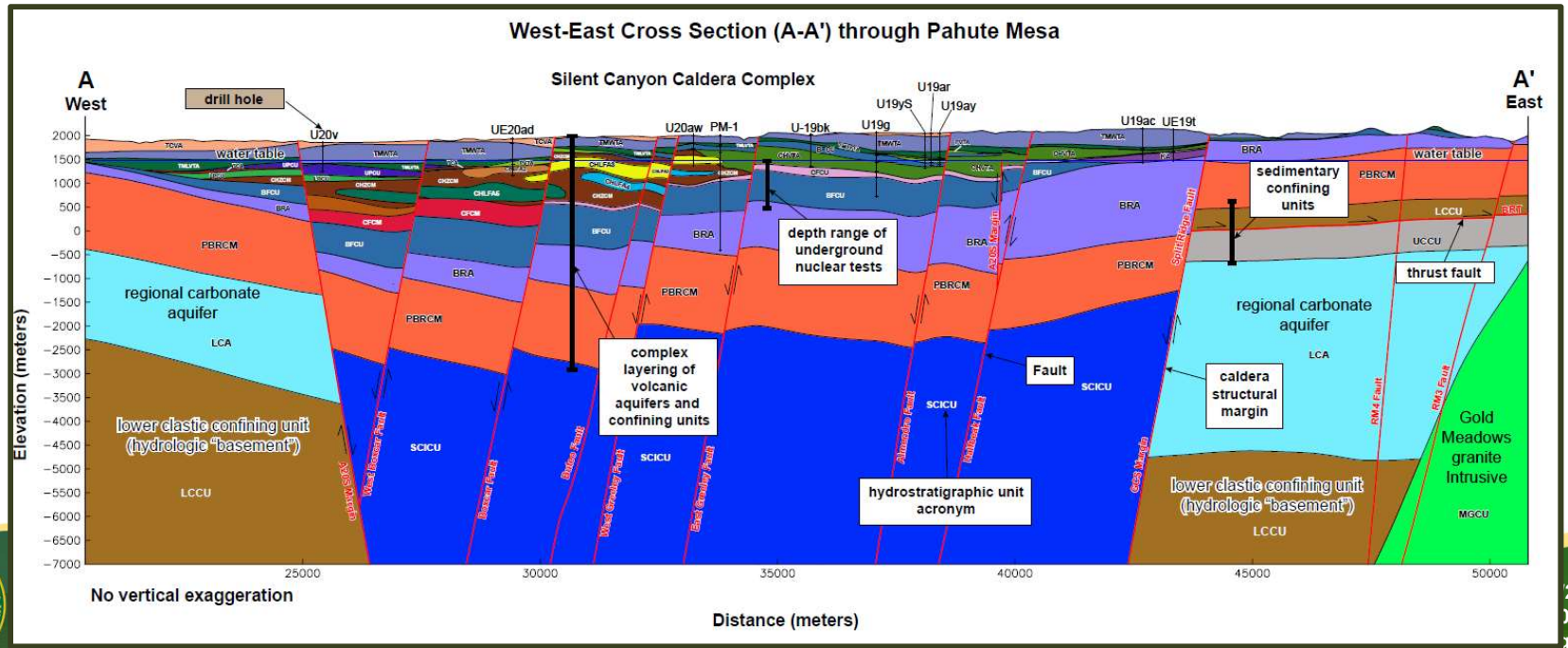
# Geology/Hydrology 101

- Rocks are categorized according to their geologic, geochemical, and hydrologic properties (e.g., aquifer or aquitard [confining unit])
  - An aquifer is a *permeable* unit of rock through which water moves (could be single or dual porosity)
  - An aquitard is a unit of rock which is confining in its nature and generally *impermeable* to water movement (no porosity or a single porosity)



# Geology/Hydrology 101 (continued)

- Units are then grouped into larger hydrostratigraphic units (colored layers on the cross sections)
  - Hydrostratigraphic units, together with faults, form the three dimensional Hydrostratigraphic Framework Models
  - Faults are structural breaks in the rock units with significant continuity and typically displacing the units

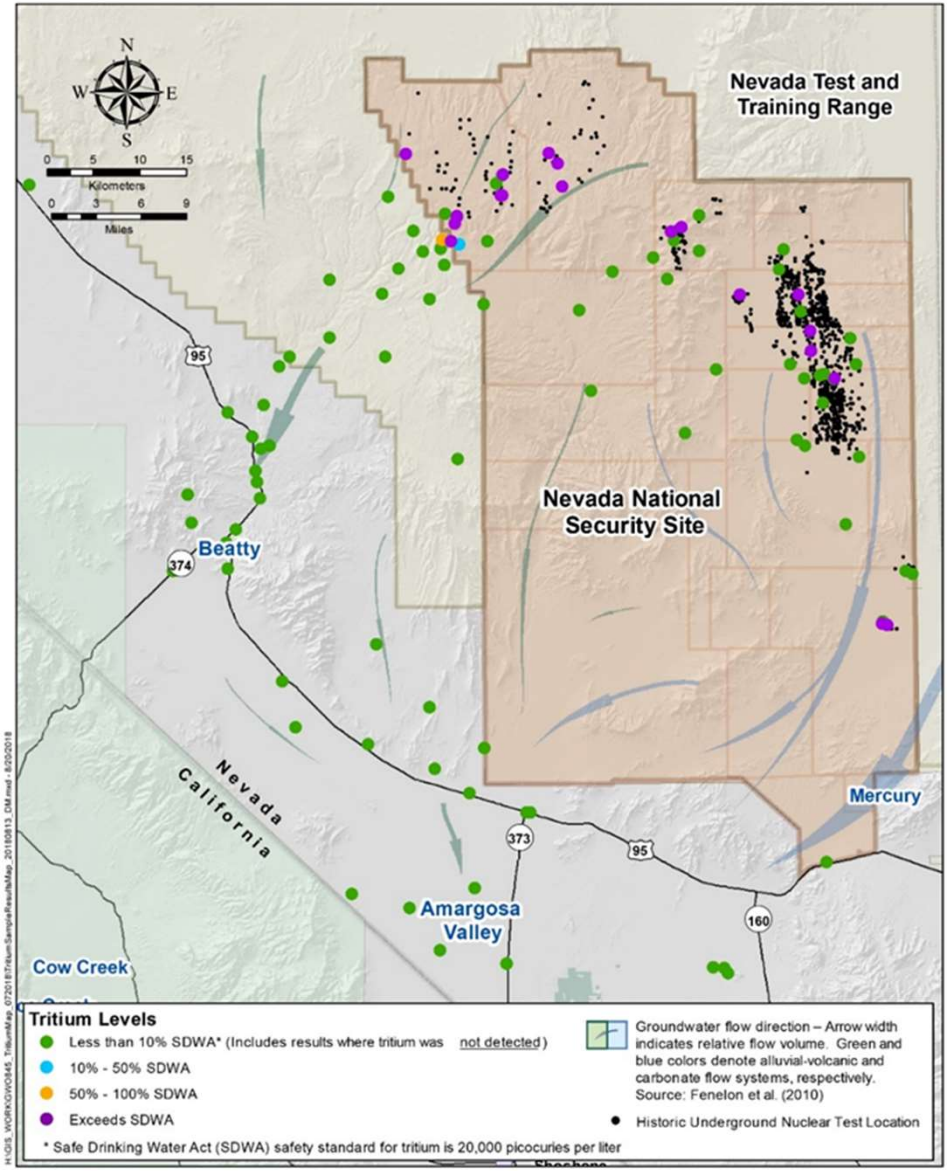


# Why Do We Sample?

- Identify the natural conditions of groundwater and geology in the subsurface, and constituents introduced by nuclear testing
- Acquire data used as building blocks for computer models
- Obtain laboratory results for regulatory compliance, stakeholder communications, and additional subsurface investigations

# Why Do We Monitor?

- Helps protect the public by providing a system of monitoring detection
- Provides baseline to establish existing conditions
- Identifies trends and verifies compliance with regulatory standards



# Why Do We Model?

- Creates three-dimensional representations of otherwise inaccessible subsurface
- Helps forecast where contamination is moving and how far over a period of time
- Provides flexibility for integrating available data
- Provides basis for regulatory compliance and risk-informed decisions

# Key Determinations

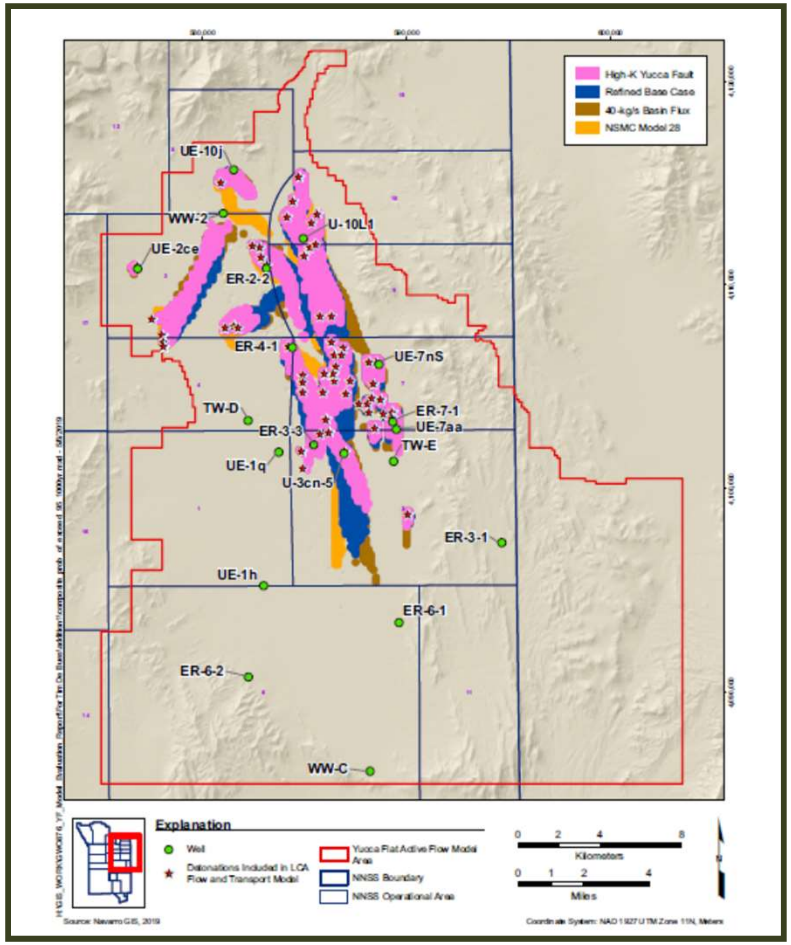
- No forecasted threat to public
- Groundwater affected by historic NNSS activities has not gone beyond restricted Federal land
- Groundwater models are providing output that is key to enhancing current and developing future monitoring strategies

# UGTA Activity Results

- Closure achieved at three UGTA CAUs on the NNSS
  - Accelerated closure anticipated to result in $100 million in savings over original cost estimates
- Rainier Mesa/Shoshone Mountain CAU closed in April 2020
  - Approved three years early, saving $5 million


Sampling Activities

# UGTA FY 2020 Wrap Up




- Yucca Flat/Climax Mine (YF/CM)
  - Planned: Negotiate regulatory and use restriction boundaries
    - Status: Completed negotiations with NDEP in November 2019
  - Planned: Submit Closure Report
    - Status: Submitted to NDEP in June 2020 and approved in October 2020

# UGTA FY 2020 Wrap Up (continued)

- Rainier Mesa/Shoshone Mountain (RM/SM)
  - Planned: Complete final Closure Report
    - Status: Approved by NDEP in April 2020
  - Planned: Implement closure monitoring requirements
    - Status: Closure monitoring began in August 2020


RM/SM: NSSAB Tour at Stockade Wash

# UGTA FY 2020 Wrap Up
## (continued)

- Pahute Mesa
  - Planned: Begin development of Phase II flow and transport models
    - Status: Model development has begun and anticipated to be complete in FY 2021

Pahute Mesa: NSSAB Briefed During Tour

# UGTA FY 2020 Wrap Up
## (continued)

Groundwater Sampling Activities

- Collect groundwater samples from nine (9) wells on the NNSS
  - Status: Collected samples from 25 wells
- Conduct Groundwater Open House in Beatty, NV on Thursday, October 17, 2019
  - Status: Conducted successful public event that included an NSSAB booth and a visit by the local Girl Scout troop

# UGTA FY 2020 Wrap Up
## (continued)

- Continued funding and support for Nye County Tritium Sampling and Monitoring Program (TSaMP) and internal peer review membership
  - Status: No detectable tritium in TSaMP samples to date
  - Status: EM Nevada Program awarded two-year grant extension


TSaMP Sampling at Bryan Spring

Article published, *EM Nevada Extends Grant for Groundwater Contamination Testing Program,* in DOE/EM Update Newsletter on June 30, 2020
https://content.govdelivery.com/accounts/USDOEOEM/bulletins/29296a2#link_8

# UGTA FY 2021 Planned Activities

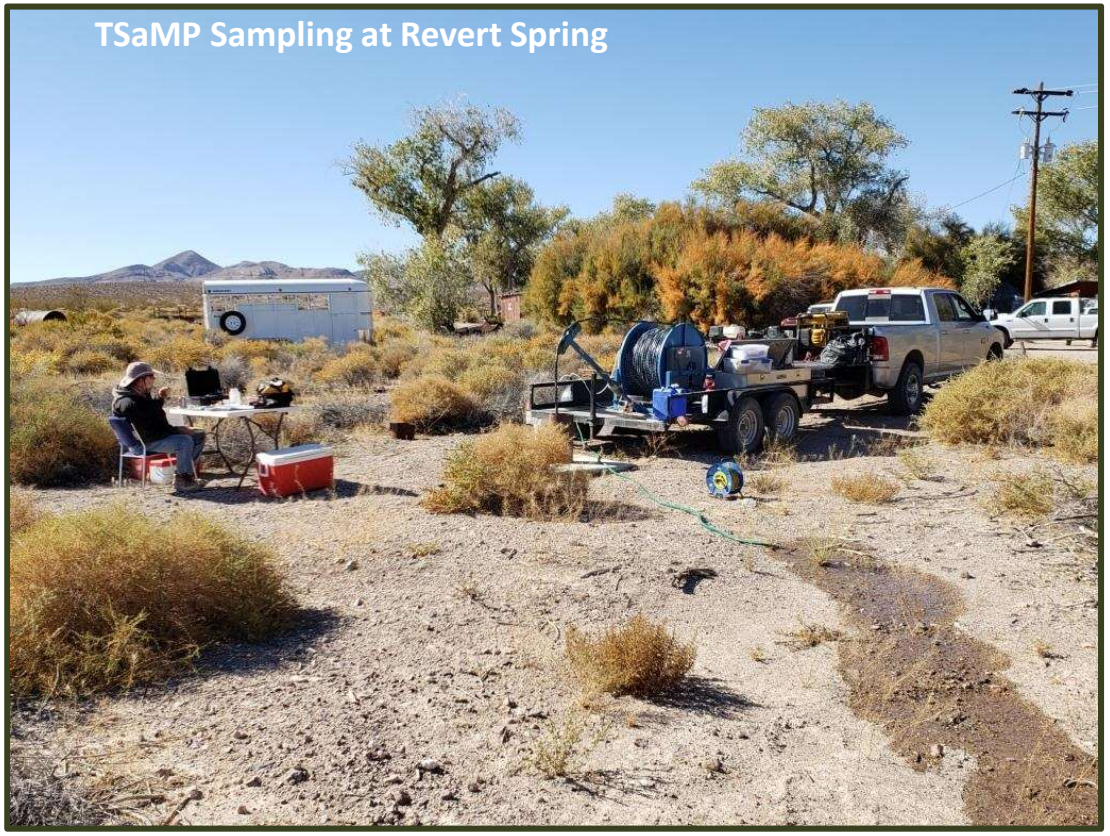

- YF/CM – the Closure Report was approved by NDEP; FY 2021 activities will be covered under Post-Closure Monitoring
- RM/SM – the Closure Report was approved by NDEP; FY 2021 activities will be covered under Post-Closure Monitoring

# UGTA FY 2021 Planned Activities
## (continued)

- Pahute Mesa – Phase II Flow and Transport Model development continues; FY 2021 activities will be:
  - Begin Flow and Transport Model reporting
  - Begin planning for External Peer Review
  - Collect groundwater samples from 13 wells

# UGTA FY 2021 Planned Activities (continued)

- Continue funding and support for Nye County TSaMP and internal peer review membership



# Industrial Sites Overview

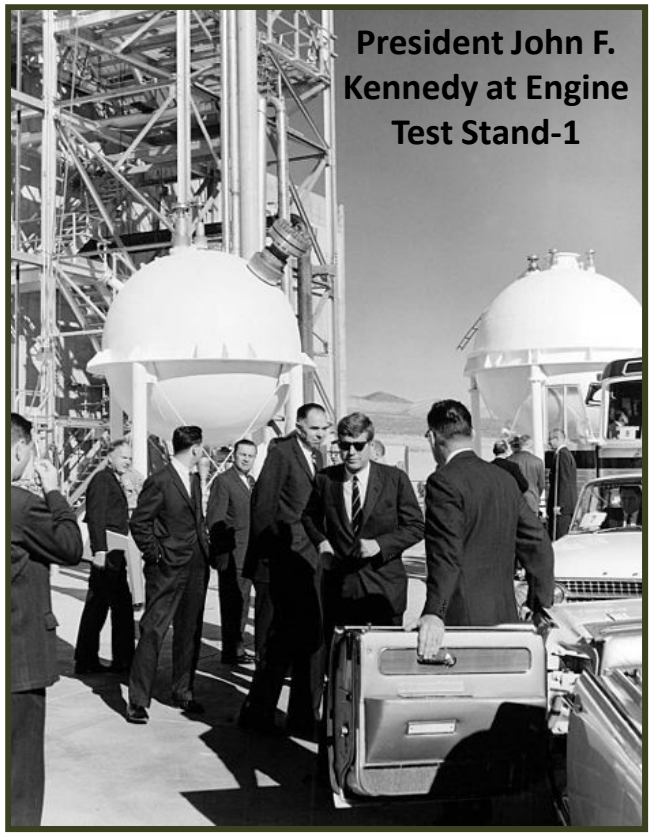
**Tiffany Gamero, Industrial Sites Activity Lead**
U.S. Department of Energy (DOE)
Environmental Management (EM) Nevada Program
October 27, 2020

# Industrial Sites Background

- Portions of the facilities and land at the Nevada National Security Site (NNSS) and Nevada Test and Training Range were used in direct support of nuclear testing
  - Facilities included such things as gas stations, motor pools, worker housing, and research buildings
- Activities resulted in hazardous and radioactive waste generation and subsequent environmental contamination

# Industrial Sites Background
(continued)

- EM Nevada Program established the Industrial Sites activity to remediate the contaminated sites
- Industrial Sites have included leach fields, sumps, disposal wells, tanks, contaminated waste piles, ordnance sites, etc.
- Contaminants of concern may include hazardous chemicals, unexploded ordnance, and radionuclides
- Potential risks are to workers and the environment


President John F. Kennedy at Engine Test Stand-1

# Industrial Sites Results

- Closure completed at 99% of FFACO Corrective Action Sites (CASs); 1857 of 1870 total
  - Planned closure of Engine Maintenance, Assembly and Disassembly Facility (EMAD) and Test Cell C (TCC)

# Industrial Sites FY 2020 Wrap Up

- TCC Ancillary Building and Structures – originally supported Nuclear Rocket Development Station activities on the NNSS
  - Planned: Complete cultural resources activities in conjunction with Nevada State Historic Preservation Office (SHPO)
    - Status: the Memorandum of Agreement (MOA) for EMAD/TCC was submitted to SHPO in July 2020 for signature


Ancillary Structures at TCC

# Industrial Sites FY 2021 Planned Activities

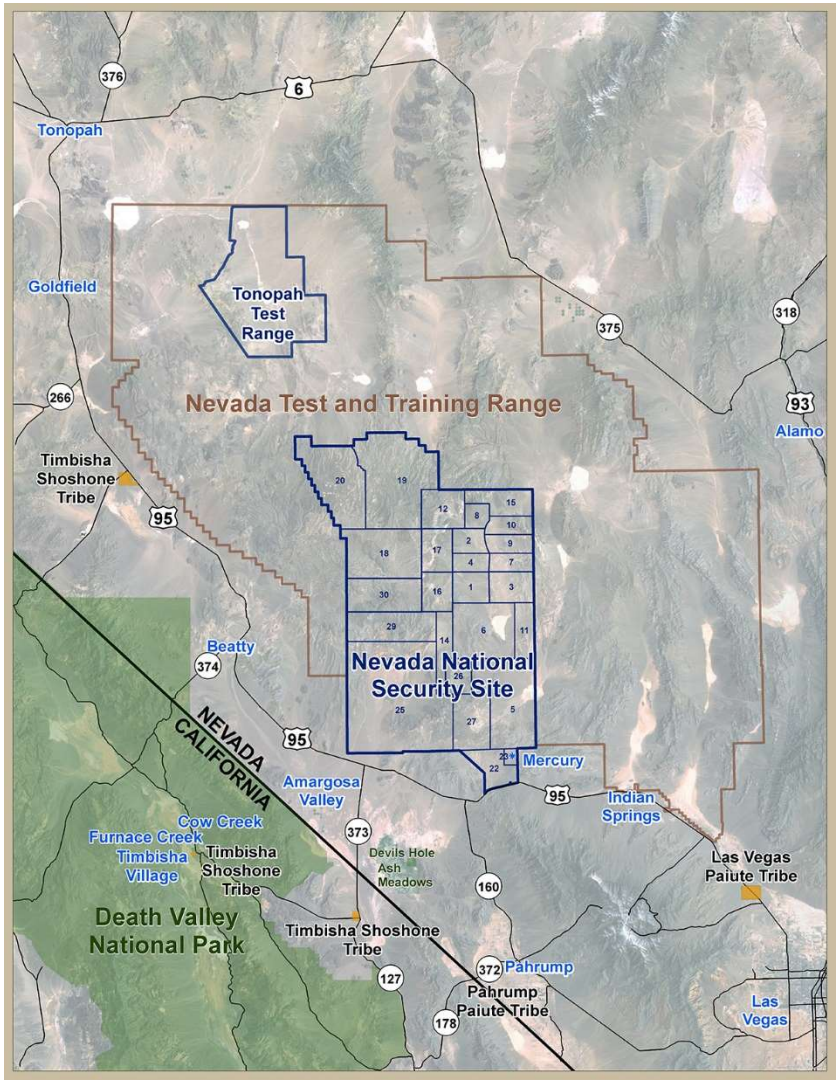
- TCC Ancillary Building and Structures
  - Complete Streamlined Approach for Environmental Restoration (SAFER) process, including field work
  - Complete Closure Report
- EMAD
  - Complete SAFER revision including field work
- Both EMAD/TCC
  - Complete cultural resources activities in conjunction with Nevada SHPO

# Long-Term Monitoring Overview

**Tiffany Gamero, Long-Term Monitoring Lead**
U.S. Department of Energy (DOE)
Environmental Management (EM) Nevada Program
October 27, 2020

# Background

- Long-Term Monitoring sites include Corrective Action Sites that are now closed under the Federal Facility Agreement and Consent Order (FFACO) and require some form of reporting, maintenance, monitoring, or inspections
  - Closed Soils Sites
  - Closed Industrial Sites
  - Closed Underground Test Area (UGTA) Sites



# Background
(continued)

- Corrective Action Sites (CASs) closed under the FFACO are closed in one of three ways:
  - No further action
    - Sites that are found to have no contamination above action levels present; nothing further is required
  - Clean closed
    - Any contamination above action levels has been removed and disposed; nothing further is required
  - Closed in place
    - Contamination above action levels is left behind and managed through controls such as use restrictions and monitoring

# Background
(continued)

- Potential controls:
  - Physical controls, such as signs, fencing, and constructed covers
  - Administrative controls, such as land use restrictions
  - Monitoring that can include visual inspection, surveys, review of records, sampling and analysis, etc.

# Post-Closure Surveillance and Maintenance

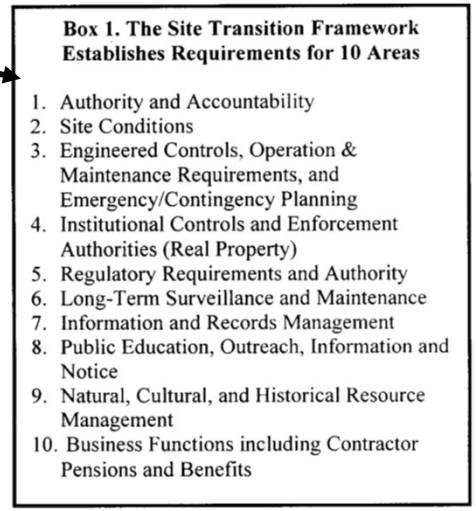
- 225 closed CASs on the Nevada National Security Site (NNSS) and Nevada Test and Training Range require post-closure surveillance and monitoring to ensure that controls for closed in place sites remain active
  - 149 closed Soils & Industrial Sites require inspections
  - 76 closed UGTA CASs monitored through post-closure sampling and inspections
- Monitoring reports documenting post-closure activities are submitted to State of Nevada Division of Environmental Protection (NDEP)

# Post-Closure Surveillance and Maintenance
(continued)

- Examples of post-closure activities include:
  - Quarterly, semiannual, or annual inspections of closed sites
  - Annual sampling
  - Repair and maintenance of site postings and controls
  - Reporting

# Transition of TTR Sites

- Transition of long-term stewardship responsibilities for 70 closed sites on the NTTR, including TTR, from the EM Nevada Program to the Office of Legacy Management (LM), complete September 30, 2020
  - Brought to completion in 9 months versus initial estimate of 2-3 years
- Followed LM's Site Transition Framework
  - 10 key focus areas
  - Over 100 actions identified
  - Over 1,700 documents and records
- Tailored to TTR Site Conditions
  - Active military training facility
  - Land not owned by DOE
  - Recognizes National Nuclear Security Administration's responsibilities for records, radiation protection program, and air monitoring

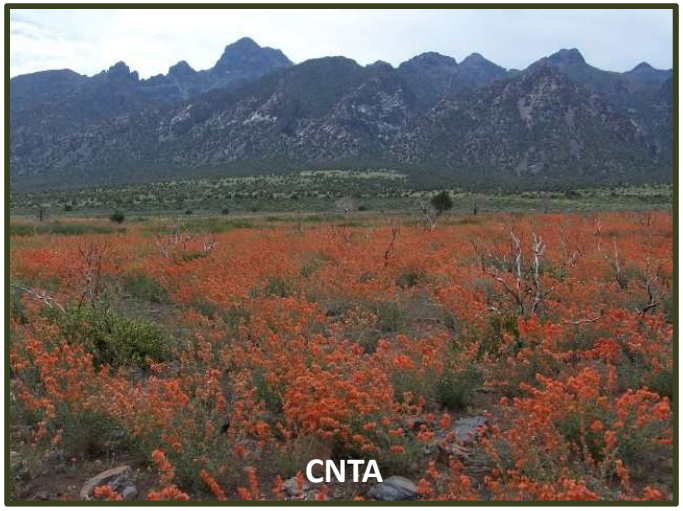


**Box 1. The Site Transition Framework Establishes Requirements for 10 Areas**

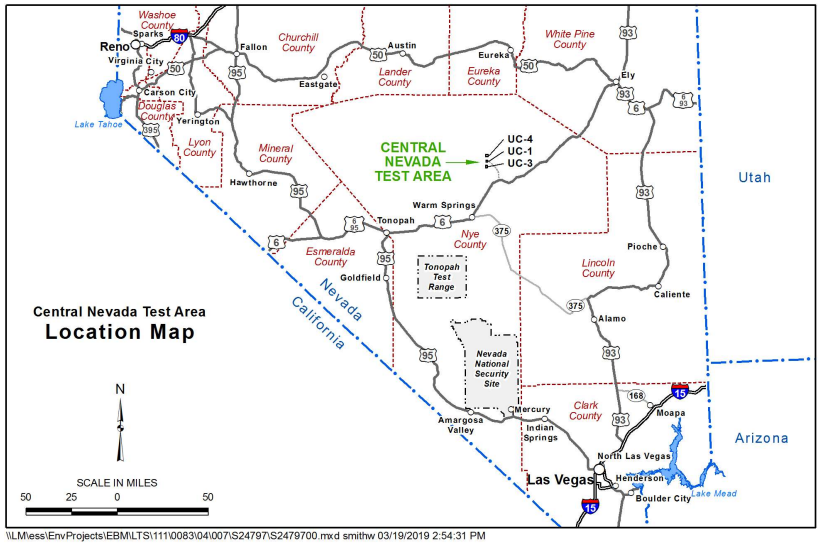
1. Authority and Accountability
2. Site Conditions
3. Engineered Controls, Operation & Maintenance Requirements, and Emergency/Contingency Planning
4. Institutional Controls and Enforcement Authorities (Real Property)
5. Regulatory Requirements and Authority
6. Long-Term Surveillance and Maintenance
7. Information and Records Management
8. Public Education, Outreach, Information and Notice
9. Natural, Cultural, and Historical Resource Management
10. Business Functions including Contractor Pensions and Benefits

Overview of the Office of LM briefing given to the NSSAB in May 2020 at: https://www.youtube.com/watch?v=FWfxDqeN5vY

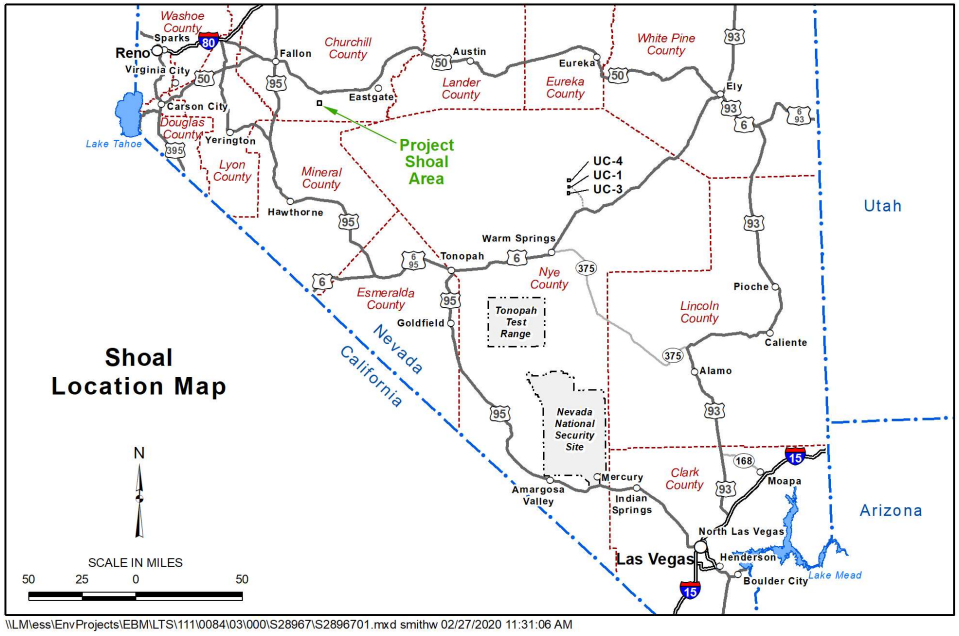
# Other EM Nevada Sites Transitioned to LM




- Central Nevada Test Area (CNTA)
  - In the early 1960s, three parcels of land acquired for underground nuclear testing and as an alternative site to the NNSS
  - Three boreholes were drilled on each of the land withdrawal parcels
    - On January 19, 1968, a test was conducted in borehole UC-1
    - Two additional tests planned but not completed (UC-3 and UC-4)
  - In 2008, LM assumed responsibility for long-term surveillance and maintenance
  - For more information: https://www.energy.gov/lm/central-nevada-test-area-cnta-nevada-site



# Other EM Nevada Sites Transitioned to LM
(continued)


- Project Shoal Area (Shoal)
  - In 1962, a four-square mile site was withdrawn for experimental purposes
  - On October 26, 1963, an underground nuclear test was conducted
  - In 2008, LM assumed responsibility for long-term surveillance and maintenance
  - For more information: https://www.energy.gov/lm/shoal-nevada-site

# Long-Term Monitoring Fiscal Year (FY) 2020 Wrap Up

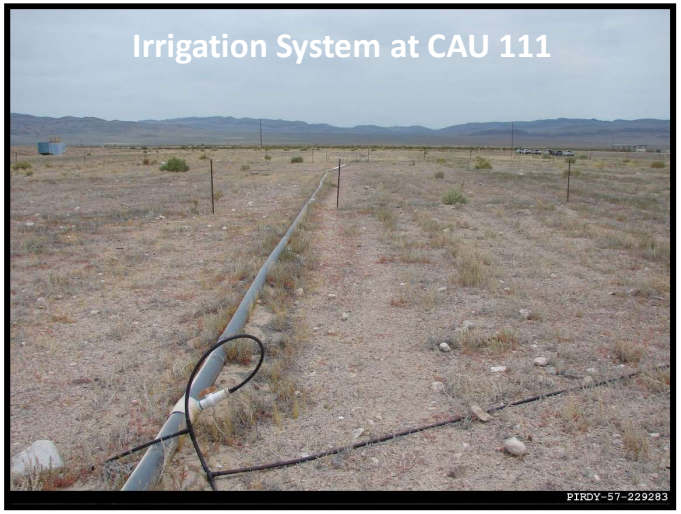
- Planned: Submit Resource Conservation Recovery Act (RCRA), Non-RCRA, and Tonopah Test Range (TTR) Post-Closure Reports to NDEP
  - Status – no significant items were identified:
    - RCRA Post-Closure Report - submitted May 2020
    - TTR Post-Closure Report – submitted May 2020
    - Non-RCRA Post-Closure Report - submitted June 2020

# Long-Term Monitoring FY 2020 Wrap Up (continued)

- Planned: Conduct quarterly, bi-annual, and annual monitoring at closed sites
  - Status: All required monitoring to date was conducted in FY 2020
    - NNSS and RCRA sites in first quarter
    - RCRA sites in second quarter
    - TTR and RCRA sites in third quarter
    - RCRA sites in fourth quarter

# Long-Term Monitoring FY 2020 Wrap Up (continued)

- Planned: Determine path forward for Corrective Action Unit (CAU) 111 revegetation
  - Status: the final vegetation monitoring event was conducted in September 2020; the results from the three-year study will be used to provide recommendations regarding a path forward




# Long-Term Monitoring FY 2020 Wrap Up (continued)

- Frenchman Flat:
  - Planned: Conduct annual calendar year (CY) 2020 closure monitoring
    - Status: Completed throughout FY 2020; results consistent with modeling; no concerns identified
  - Planned: Submit CY 2019 monitoring report
    - Status: Submitted in June 2020; monitoring did not identify any concerns
    - The five-year monitoring evaluation will be added to the CY 2020 monitoring report per NDEP

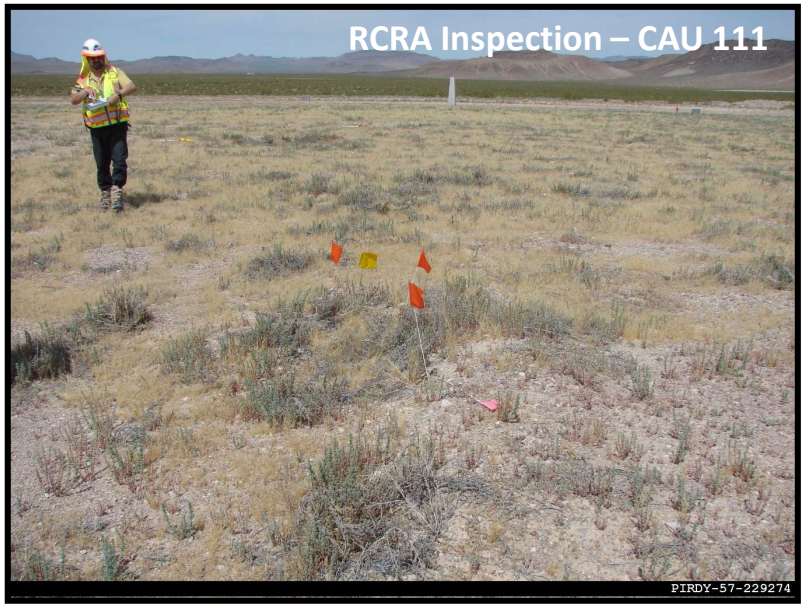
# Long-Term Monitoring FY 2020 Additional Activities


- Rainier Mesa:
  - Planned: Conduct annual CY 2020 closure monitoring
    - Status: Field work has been delayed due to COVID-19; completion of this activity is expect to occur by the end of CY 2020

# Long-Term Monitoring
# FY 2021 Planned Activities


- Submit the CY 2020 RCRA, Non-RCRA, and TTR Post-Closure Reports to NDEP
- Conduct quarterly, bi-annual, and annual monitoring at closed sites
  - Annual inspections at closed TTR sites will be conducted by DOE Office of Legacy Management in 2021 and beyond

# Long-Term Monitoring
# FY 2021 Planned Activities
## (continued)




- Determine path forward for CAU 111 revegetation

# Long-Term Monitoring
# FY 2021 Planned Activities
## (continued)

- Conduct Frenchman Flat annual CY 2021 closure monitoring
- Conduct Rainier Mesa annual CY 2021 closure monitoring
- Conduct Yucca Flat annual CY 2021 closure monitoring
- Submit Underground Test Area (UGTA) CY 2020 post-closure monitoring letter report


Sampling Activities

# Waste Management Overview

**Jhon Carilli, Low-Level Waste Activity Lead**
U.S. Department of Energy (DOE)
Environmental Management (EM) Nevada Program
October 27, 2020

# Background of Waste Disposal

- Cold War-related activities and nuclear research generated waste at sites across the country
- DOE is responsible for consolidating and disposing waste generated by DOE clean-up activities and ongoing national security and science missions
- DOE, under the authority of the Atomic Energy Act of 1954, as amended, self-regulates all material (including waste) under DOE control (management)
  - DOE Orders provide requirements that must be followed, such as DOE Order 435.1
  - U.S. Nuclear Regulatory Commission (NRC) does not regulate DOE's radioactive materials and/or waste

# NNSS Waste Acceptance and Disposal

- Manage the safe acceptance and disposal of classified, low-level radioactive waste (LLW), mixed LLW (MLLW), classified non-radioactive, and classified non-radioactive hazardous waste at NNSS
  - No high-level waste or commercial waste is accepted
  - On-site waste has been compliantly disposed at the Nevada National Security Site (NNSS) since 1961
  - Complies with rigorous NNSS Waste Acceptance Criteria and applicable federal and state regulations
  - Ensures the safety of the public

Clean Slate III Shipment at the NNSS Area 3

# Types of Waste Disposed at the NNSS

- LLW is radioactive waste not categorized as high-level waste, transuranic waste, spent nuclear fuel, or by-product material
  - Typical waste includes contaminated metal, debris, soils, equipment, personal protective clothing, tools, etc.
  - No programmatic use
- MLLW contains LLW and a hazardous component (i.e. toxic, corrosive, reactive, ignitable or specifically identified by U.S. Environmental Protection Agency as a hazardous waste)

Area 5 Radioactive Waste Management Complex MLLW Cell 25

# Types of Waste Disposed at the NNSS
(continued)

- Classified waste requires protection for national security reasons (facility secured 24/7)
  - May contain a hazardous component
  - May be radioactive

For more in-depth information, educational video on “DOE and NRC Waste Classification Systems” at: https://youtu.be/5BjiKw7vNes

# Reasons for NNSS Selection

- The NNSS was chosen due to its isolated location, security, and arid climate
  - No groundwater pathways
  - Deep groundwater (~700 feet – 1,600 feet) at Frenchman and Yucca Flat
  - Low precipitation (5-7 inches per year) at lower elevations

# Area 3 Radioactive Waste Management Site (RWMS)

- 128-acre disposal area with seven subsidence craters configured into five disposal cells
- Maintained in “cold standby” mode from 2006 – Sept 2018
- From October 2018 – August 2019, Area 3 RWMS used for Clean Slate III waste disposal from the Tonopah Test Range and then returned to “cold standby"


Clean Slate III Shipment at the NNSS Area 3

- Total current disposed volume is more than 19.5 million cubic feet with ~ 8.8 million cubic feet of disposal capacity remaining

# Area 5 Radioactive Waste Management Complex (RWMC)

- 44 engineered disposal cells
  - 36 total closed cells
    - Nine operationally closed
    - 26 permanently closed in 92-acre area
    - One MLLW cell under permanent closure activities
  - Seven active LLW cells
  - One active MLLW cell

- Total current disposed volume is more than 31 million cubic feet

# Area 3/5 Monitoring Activities

- Ongoing air, groundwater, and soil monitoring
  - Verifies the continued safety of workers and the public
  - Provides a measure of performance
  - Results to date have shown no radiological releases above regulatory limits

| Monitoring Type/Location | Number of Locations | |
|---|---|---|
| | Area 3 RWMS | Area 5 RWMC |
| Air | 1 | 2 |
| Groundwater | 1 | 3 |
| Meteorology | 1 | 1 |
| Leachate | 0 | 2 |
| Evapotranspiration | 0 | 2 |
| Soil Moisture | 0 | 9 |
| Soil Temperature | 0 | 10 |
| TLD* | 9 | 14 |
| Vadose Zone | 3 | 0 |

* Thermoluminescent Dosimeters

# Emergency Preparedness Working Group (EPWG) Grant

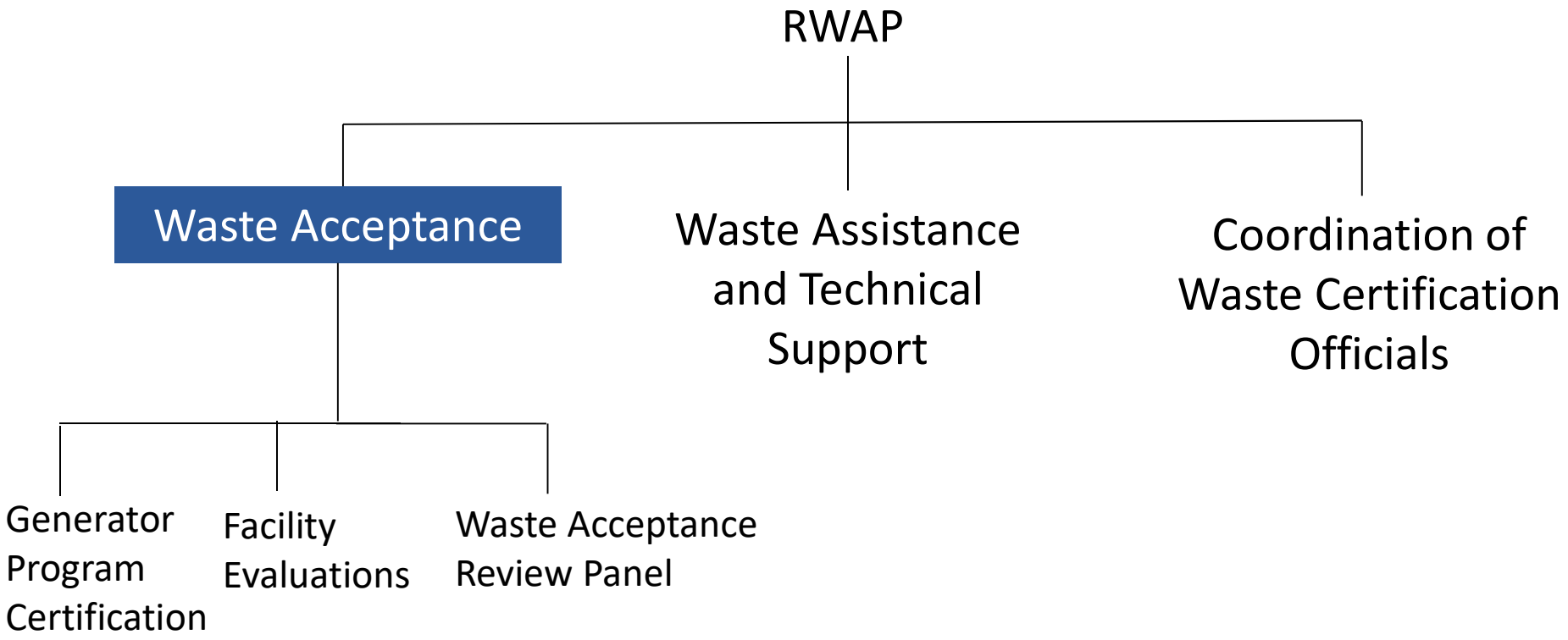
- Since 2000, DOE provides $0.50 per cubic foot disposed for all waste disposed at the NNSS to fund a rural county emergency preparedness grant
- More than $15.1M has been distributed through the State of Nevada Division of Emergency Management to Clark, Elko, Esmeralda, Lincoln, Nye, and White Pine counties
  - Funding provided in accordance with approved grant application and oversight of funding use
- Priorities for grant funding include consideration for county needs and the resource base available in the counties
- Examples of EPWG-funded items: emergency management resources, such as, ambulances, fire trucks, communication equipment, construction of training facilities and emergency services buildings, etc.

# Waste Acceptance/Disposal Requirements

- Waste must be generated at a DOE facility or defense-affiliated site
- NNSS and its stakeholders expect absolute compliance with the Waste Acceptance Criteria
- Waste disposed at the NNSS must meet a rigorous disposal acceptance criteria
  - Waste may not contain free liquids
  - All waste must be containerized (examples of containers include 55-gallon steel drums, cargo containers, burrito wraps, soft-sided containers, and carbon steel boxes)

NSSAB Observation of Visual Verification Activities

# Radioactive Waste Acceptance Program (RWAP) Activities



# Waste Acceptance – Generator Program Certification

- The waste generator program certification is the foundation for the acceptance of waste at the NNSS
- Approved generators undergo an initial audit to ensure their waste program conforms to NNSS requirements


For more in-depth information, educational video on "New Generators – Start to Finish Overview" at: https://www.youtube.com/watch?v=eZciV2Gn76s

# Waste Acceptance – Facility Evaluations

- After a waste generator obtains approval, the RWAP team conducts periodic assessments of the generator's waste program to verify continued compliance with the NNSS Waste Acceptance Criteria (NNSSWAC) Certification (generally with an on-site visit)

# Waste Acceptance – Facility Evaluations (continued)


- Every container is required to be certified by the generator organization that it complies with the NNSSWAC
- Verification Techniques
  - Visual Verification
  - Real-time radiography (RTR)
  - Waste sampling and analysis
  - Radiological scanning

# Waste Acceptance – Waste Acceptance Review Panel (WARP)

- Each waste stream destined for NNSS is described in a Waste Profile
- The profiles include the regulatory status, radioactivity, and physical form, as well as volumes and container types
- The WARP reviews waste streams to ensure it meets NNSSWAC
- WARP consists of following:
  - DOE EM Nevada Program
  - RWAP team
  - NDEP (Resource Conservation and Recovery Act and Joint Oversight)
  - Operations
  - National Nuclear Security Administration
  - Performance Assessment
  - Additional subject matter experts (SME), as needed

## Waste Acceptance – Waste Assistance and Technical Support

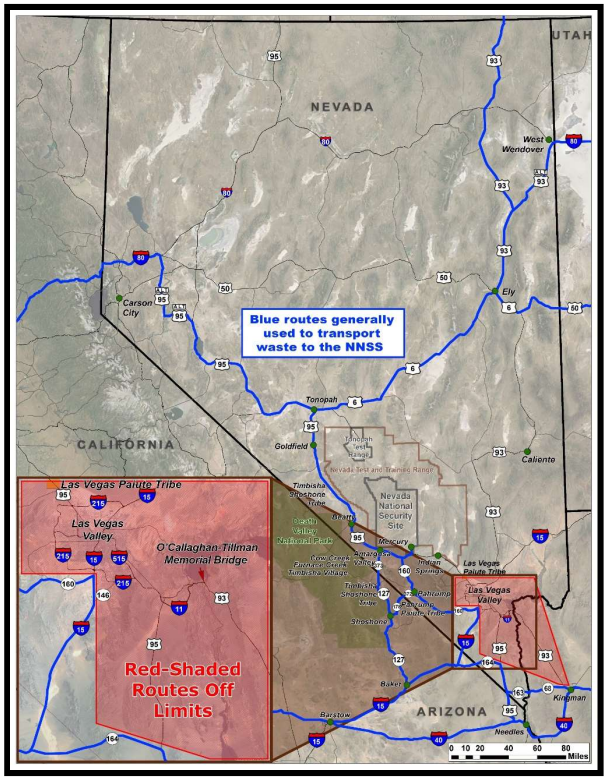

- Performs:
  - Site visits to generators
  - Assist generators to be compliant with NNSS Waste Acceptance Criteria

## Waste Acceptance – Coordination of Waste Certification Officials (WCO)


- Conducts:
  - Waste Generator Workshops
  - Monthly WCO Conference Calls
  - WCO can call RWAP SMEs, as needed

# Transporting Waste to NNSS

- Shipping is regulated by the U.S. Department of Transportation (DOT) – not by DOE
- Carriers select routes in compliance with DOT requirements
- Drivers must report routes; routes through Las Vegas Valley and across Hoover Dam bypass bridge are off limits
- Waste must be properly packaged, marked, and labeled




Quarterly Waste Volume and Transportation Reports accessible at:
nnss.gov/pages/programs/RWM/Reports.html

# Waste Management FY 2020 Wrap Up

- Planned: Safely dispose ~ 1.4 million cubic feet ($ft^3$) of forecasted waste at the NNSS
  - Status: As of September 30, 2020, the NNSS safely disposed 459,644 $ft^3$ of waste

LLW Offloading

# Waste Management FY 2020 Wrap Up (continued)

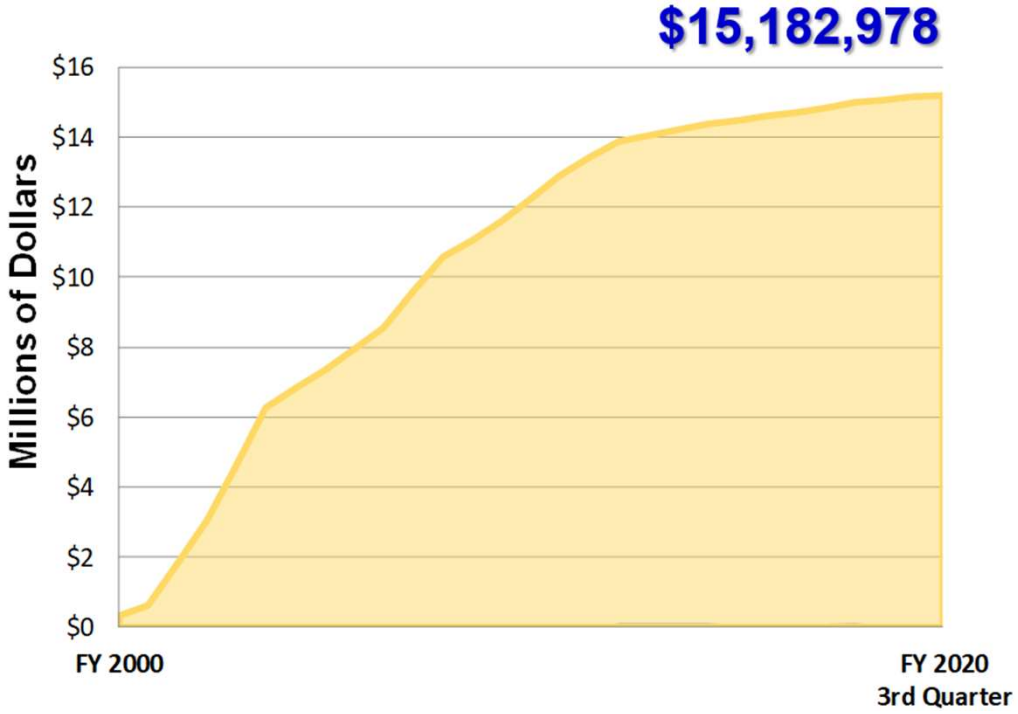
- Planned: Submit annual Performance Assessment Summary Report to the LLW Federal Review Group
  - Status: Submitted in March 2020; no significant changes from past trends

# Waste Management FY 2020 Wrap Up (continued)


RWAP Facility Evaluation

- Planned: Conduct RWAP facility evaluations
  - Status: RWAP conducted 31 facility evaluations, including verifications
    - NDEP participated in 19 of these facility evaluations
    - Due to COVID-19, majority of facility evaluations have transitioned to tabletops

# Waste Management FY 2020 Wrap Up (continued)




- Planned: Continue funding and support for the EPWG grant
  - Status: Provided over $15.1 million in funding to Clark, Elko, Esmeralda, Lincoln, Nye, and White Pine counties since FY 2000

# Waste Management FY 2020 Wrap Up (continued)

- Complete construction of new monitoring well south of the Area 5 RWMC (NSSAB provided a recommendation in May 2018)
  - Status: Construction completed in February 2020

# Waste Management FY 2020 Wrap Up (continued)

- Planned: Completing flood control berm and channel on western section of Area 5 RWMC
  - Status: Completed the flood control berm and channel; construction continues on the relocation of a power/fiber line that is anticipated to be complete by the end of the calendar year

# Waste Management FY 2020 Wrap Up (continued)

- Planned: Complete design of new cell on western section of Area 5 RWMC and potentially begin construction
  - Status: The design for the western expansion cells is still being worked; the management and operating contractor is considering building a cell in the northwestern expansion area

# Waste Management FY 2020 Wrap Up (continued)

- Planned: Begin closure of mixed MLLW Cell 18 with a closure cap and initial revegetation
  - Status: Seeding planned for October/ November 2020 with transplants in March/ April 2021


Area 5 RWMC MLLW Cell 18

# Waste Management FY 2021 Planned Activities

- Safely dispose up to 1.4 million $ft^3$ of forecasted waste at the NNSS
- Submit annual Performance Assessment Summary Report to the LLW Federal Review Group
- Complete closure activities of MLLW Cell 18 with a closure cap and initial revegetation


LLW Offloading

# Waste Management FY 2021 Planned Activities (continued)

- Conduct RWAP facility evaluations
- Continue drafting update for NNSS Waste Acceptance Criteria
- Continue funding and support for the EPWG grant


Pioche Fire Engine Purchased through EPWG Grant by the Disposal of LLW at the NNSS